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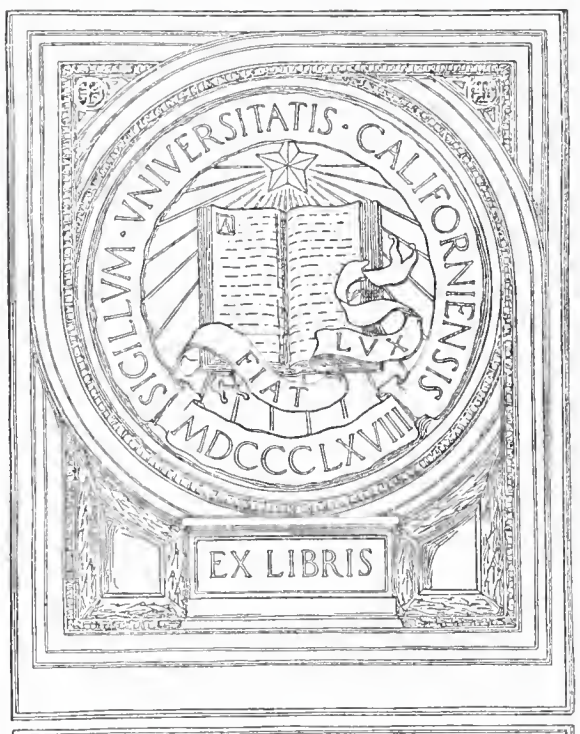

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June, 1968

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 65 No. 1

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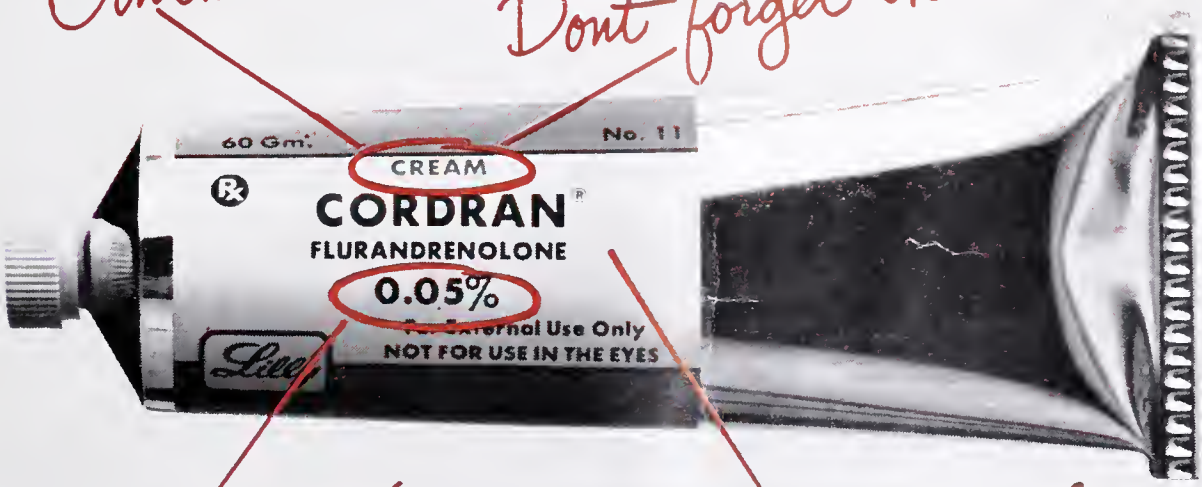

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(1) Siver, R. H.: CMD, *21*:109, September 1954. (2) Frykman, H. H.: Minn. Med., *38*:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., *51*:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., *15*:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., *58*:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, *25*:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., *20*:591-593, November 1965.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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H. W. THOMAS, M. D.

Dermott

President

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1968-1969

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VOLUME 65 • JUNE, 1968 • NUMBER 1

PROCEEDINGS
92nd Annual Session
ARKANSAS MEDICAL SOCIETY
Arlington Hotel, Hot Springs April 21-24, 1968

FIRST MEETING
HOUSE OF DELEGATES

The Speaker of the House of Delegates, J. P. Price of Monticello, called the first meeting of the House of Delegates to order at 1:00 P.M. on Sunday, April 21, 1968, in Room "C" of the Arlington Hotel Conference Center, and called on past president C. Lewis Hyatt for the invocation.

The Executive Vice President, Mr. Schaefer, called the roll of delegates. The following delegates, officers, and members seated as delegates by action of the House were present: ARKANSAS, R. H. Whitehead; ASHLEY, Charles E. Hicks; BAXTER, John F. Guenthner; BOONE, Henry V. Kirby; BRADLEY, George F. Wynne; CHICOT, Major E. Smith; CLARK, George R. Peeples; CLEBURNE, William M. Wells; COLUMBIA, H. Scott McMahen; CONWAY, G. B. Owens; CRAIGHEAD-POINSETT, John B. Kirkley, Henry Keisker; CRAWFORD, Millard C. Edds; CRITTENDEN, David H. Pontius; DALLAS, John H. Delamore; DESHA, Guy U. Robinson; DREW, John P. Price; FAULKNER, C. A. Archer; FRANKLIN, David L. Gibbons; GARLAND, John W. Trieschmann, Cecil Parkerson; GRANT, Clyde D. Paulk; HEMPSTEAD, Forney G. Holt; HOT SPRING, John D. Wise; INDEPENDENCE, Jim E. Lytle; JEFFERSON, Carl Nash; JOHNSON, Guy Shrigley; LOGAN, W. Duane Jones; LONOKE, Fred Inman; MISSISSIPPI, J. E. Beasley; OUACHITA, L. E. Drewery; POPE-YELL, Roy I. Millard, Charles F. Wilkins; PULASKI, F. R. Buchanan, James L. Smith, Frank Morgan, Robert Watson, Edgar J. Easley, Samuel B. Thompson, George K. Mitchell, William S. Orr, Thomas Jansen, T. J. Smith, Frank Padberg, John McCollough Smith, W. Myers Smith, James Weber; SEBASTIAN, A. C. Bradford, Paul Rogers, Carl Williams, Carl Wilson; UNION, George Burton, Jacob P. Ellis; WASHINGTON, J. Warren Murry, Lee B. Parker, Morriss Henry; EENT SECTION, James Pappas. COUNCILORS, Eldon Fairley, Bascom P. Raney, Paul Gray, Hugh R. Edwards, L. J. Pat Bell, T. E. Townsend, A. W. Lazenby, Kenneth R. Duzan, Karlton Kemp, John P. Wood, Jack Kennedy, Robert F. McCrary, W. Payton Kolb, James R. Morrison, Stanley Applegate, Ross Fowler, C. C. Long, A. S. Koenig; PRESIDENT Joseph A. Norton; PRESIDENT-ELECT H. W. Thomas; FIRST VICE PRESIDENT Jerome S. Levy; SPEAKER John P. Price; VICE SPEAKER Amail Chudy; SECRETARY Elvin Shuffield; TREASURER Ben N. Saltzman; PAST PRESIDENTS Joe Verser, James M. Kolb, Charles R. Henry, Euclid M. Smith, C. R. Ellis, C. Lewis Hyatt, L. A. Whittaker.

The chairman of the Credentials Committee, James M. Kolb, reported that 74 members of the House were present, constituting a quorum.

Speaker Price introduced the following special guests:

Mrs. Karl Ritter, Lima, Ohio, President of the Woman's Auxiliary to the American Medical Association;

Mrs. C. C. Long, Ozark, President-elect, Woman's Auxiliary to the American Medical Association;

Mrs. Art B. Martin, Fort Smith, President of the Woman's Auxiliary to the Arkansas Medical Society;

Mrs. C. D. Burroughs, Pine Bluff, President-elect, Woman's Auxiliary to the Arkansas Medical Society;

Mr. A. M. Edwards, Field Representative, American Medical Association;

Winston K. Shorey, Dean of the University of Arkansas School of Medicine.

Dr. and Mrs. M. E. Blanton, Dr. and Mrs. Gilbert Dean, and Dr. Lewis Hyatt visit during the Wine and Cheese Tasting Party Monday evening.

Dr. and Mrs. James M. Kolb, Sr., Dr. James M. Kolb, Jr., and Dr. and Mrs. Jack Dobson at the Wine and Cheese Tasting Part on Monday Evening.

Dr. Joe Verser, Dr. Jerome Levy, Dr. Eli Gary (back to camera) and Dr. George F. Wynne visit during the Wine and Cheese Tasting Party.

Dr. and Mrs. Ross Fowler enjoying the Wine Tasting Party. In the left background is Dr. Elvin Shuffield.

These representatives of the Arkansas State Medical Assistants Society worked in the coffee bar during the convention, serving coffee and discussing the purposes of their organization with members of the Medical Society. They are (from left) Deany Reid, Betty Stipsky, Veda Tassey and Toni West.

Dr. John Herron, Dr. W. R. Meredith, Dr. James Mashburn, Dr. Stanley Applegate, Dr. M. E. Blanton, and Dr. Merle Woods at the Wine and Cheese Tasting Party on Monday evening.

Upon the motion of Samuel Thompson and Jerome Levy, the House adopted the minutes of the 91st Annual Session of the Arkansas Medical Society as published in the June 1967 issue of the Journal of the Arkansas Medical Society.

Speaker Price introduced the Society president, Joseph A. Norton, who addressed the House as follows:

ADDRESS OF THE PRESIDENT

I thank you for this opportunity. A year ago I assumed the responsibility as president of the Arkansas Medical Society. I am grateful for the honor and for the year of opportunity afforded me.

My theme to you—stated here last year at the annual meeting — was: responsible involvement —as an organization and as individuals—in affairs of organized medicine, and in affairs of church, community and government.

There was certainly nothing new or original in that theme. Many Arkansas Medical Society members and wives have for years been active in all or some of those spheres. Such concern in the past had brought the Arkansas Medical Society to its full program that was represented by the considerable amount of hard work and of accomplishment in that meeting last year. But the idea of the theme was for more—for extended—effort . . . for a habit of positive action, instead of reaction, instead of fear, instead of mere opposition. And the theme was based on the feeling that our members and our organization do represent in truth the leadership in health in Arkansas—represent community leadership in many matters—and on my own feeling that these changing times demand of each and all of us wider, fuller, more responsible involvement, so that our leadership potential not be wasted or abdicated.

I started by trying to make myself, as Arkansas Medical Society president, more informed and readily available to any legitimate group or individual, lay or professional or government. I have tried to keep abreast of the tremendous amount of written and verbal materials concerning health in this past year, and could only be partially successful, to be sure. I sought every opportunity to meet with and speak before all sorts of groups—and have made at least 136 such contacts as your president in this past year. I thank you for this opportunity—I thank my understanding and tolerant partners in Radiology Associates for their allowance.

These appearances were helpful to me. I can recommend that such contacts be actively sought by each of you—members, officers, staff—if you want to be heard, to be understood, and particularly, if you want to know what is being said and understood by others about today's medicine in Arkansas. For that is part of the good—to be able to listen to others—after all, usually, others were personal friends—neighbors, Arkansans, willing to speak and to be candid, and always hopeful for your response.

Communication has been a problem since Adam and Eve misunderstood our Lord in the Garden of Eden.

You can take the lead—can help here by being willing to give a little time, a little study, to do that which is necessary to represent medicine to your own assembled neighbors and friends at home.

Be sure you are prepared—do your homework. Know your subject. Do not be content to point to your past good deeds and ideals. Know what organized medicine does stand for today. Be strong in your support, but not rigid in your manner. Certainly do not be condescending to your lay friends. For in this day our lay and allied professional friends have much knowledge —and more half-knowledge—in matters of health. You must teach and lead. And you can learn too, if you allow, and listen with open mind, in true scientific attitude. I find that our communities do want medicine to lead in all matters of health. And they are often confused and dismayed that local medical leaders do not step into the leadership role offered or available.

This year I have put on our committee structure of the Arkansas Medical Society much responsibility. I organized committee portfolios and made up suggested minimum programs of work, as a starter. And they have responded very well. There has been much committee activity, and this is reflected in the committee reports that you will consider during this meeting. I do hope that you each will read these reports, follow them through the reference committee channel and back to our final House meeting here, so that final actions might truly represent concerned and informed majority thinking.

I really have imposed myself on our Council and our Executive Committee by lengthening each agenda with reports, complaints, sugges-

Dr. and Mrs. J. B. Elders and Dr. and Mrs. Ralph Joseph, all of Walnut Ridge, at the Wine and Cheese Tasting Party Monday evening.

Dr. and Mrs. Thomas Durham and Dr. and Mrs. James Weber at the Wine and Cheese Tasting Party on Monday evening.

Dr. and Mrs. Frank Padberg at the Wine and Cheese Tasting Party on Monday evening, April 22nd, 1968.

Mr. Al Wiederkehr of the Wiederkehr Winery of Altus was master of ceremonies for the Wine and Cheese Tasting Party in the Ballroom of the Arlington on Monday evening, April 22nd. Caught by the photographer at the party were (left to right) Dr. Elvin Shuffield, Secretary of the Society; Dr. H. W. Thomas, president-elect, Mr. Wiederkehr, and Dr. Joseph A. Norton, president.

Dr. John F. Guenthner, Dr. and Mrs. Julian Fairley at the Wine and Cheese Tasting Party Monday evening.

The chairman of the convention committee, Dr. Harry Hayes, Jr., enjoys the Wine Tasting Party on Monday evening. Shown with Dr. Hayes are (right to left) Mrs. Hayes, Miss Thomas and Mrs. Smith (Dr. Hayes' employees) and Dr. Charles Logan.

tions and whims during this year. Here and now, publicly, I apologize for my actions to these men, and thank them for their toleration. Yet, there was tangible result—for much Arkansas Medical Society business was considered, and the Council has responded positively by the decision to meet monthly from October through the next annual meeting, on Thursdays, to try and keep ahead of the tremendous number of pressures and matters that come up for consideration and decision.

I salute today the Council, the other elected officers, the committee memberships, particularly chairmen, for they have served you and me faithfully, regularly, diligently, with dedication and intelligence.

While we have tried to involve ourselves responsibly, our Auxiliary, under the able leadership of Mrs. Art Martin, has continued its own full program. These ladies are our best weapon, for they have knowledge, energy, local entree, and take the time to do our work for us in so many areas.

I was delighted to find many county societies having joint meetings of men and wives, for dinner, some for just social pleasure, some for joint business sessions, some after fellowship and dinner, dividing to consider their respective responsibilities. I commend the procedure to all county societies and auxiliaries, as I commend the total auxiliary program and action.

My year of activity has been sometimes worthwhile, I hope—but also sometimes just business—slipping wheels—but through it all, the staff of the Society—Paul Schaefer, Leah Richmond, and the others—have given to me and to the other officers and chairmen tremendous aid, counsel, guidance—always helpful, courteous, thorough, needed. Most of us come and go in positions of leadership, but this able staff does carry on, to our great advantage. It is true that a major part of our Society budget does go for this staff and our office, but nowhere do we get a better return on our investment. They run our day-to-day business—a $130,000 business—and are the window and door for us to the world around us. They do respond to every individual request from any member of the Society, any officer, any outsider who seeks information about the Arkansas Medical Society and organized medicine. Try them—use them, as I do. I am grateful for their presence and their continued professional help.

I must say here that I am hopeful that our Society staff and office might soon be located in the central Arkansas area — Little Rock, Hot Springs, or Pine Bluff, to be more accessible to all of us geographically—and I will work to that end with any who feel as I do.

This has been an interesting year for medicine in Arkansas—just let me mention some involvements.

Comprehensive Planning for Health has been started, and the Society is in there working on a state level — you get in there locally, and give leadership now, when it will count the most.

Arkansas Regional Medical Program is well underway, and the Society is involved heavily, and you also must involve yourselves locally, to get that which is desirable in the way of graduate education for yourselves and the paramedical groups in your community — this is a program that we can develop fully.

The Blues have worked mightily to respond to the requests we made of them last year at the annual session — and the Society has been involved, too. I have made each Blues board meeting this year, along with our other six Society Board members. The Blues are trying to develop the expanded coverage for those not now under government coverage, based on usual, customary and reasonable individual fees, confidential, controlled by our own peers in our own Society through our own Fee Committee and the Executive Committee. We need your response—send in your registry of fees, that actuaries might come up with a program for our Society consideration soon. The matter of participation turns out to be a legal necessity, but the matter of differential payment for services turns out to be a Blues administrative choice—and so there is continued room for negotiation here. I am hopeful in this matter—but over and beyond that, I am assured personally that you and I have our greatest chance for constructive action in helping meet medical costs through our active participation in and use of our Blues program. I hope you agree with me. Invite the Blues to your area —let them hear you—and you hear them—there will be much good from such involvement.

Welfare and Rehabilitation — the regular liaison has been most effective and will continue. Title 19 is being worked on now and the Society is in the middle of that effort. We are hopeful that we can avoid the errors of so many other states, and can profit by the mistakes of others. Let us work to insure that our leadership will be

Dr. Jack E. Mobley receives cash award and certificate as winner of Aesculapius Award for his outstanding scientific exhibit. The presentation was made by Dr. Harry Hayes, Jr., chairman of the scientific exhibits. President's Banquet, April 23, 1968.

President Norton presented Mrs. C. C. Long with a gift of pearls and a plaque from the Arkansas Medical Society. Dr. Long and Mrs. Norton look on approvingly. President's Banquet, Tuesday, April 23, 1968.

Dr. Robert Watson, President of the Medical Education Foundation for Arkansas, presents a check for $6,500 to Dean Winston K. Shorey for the student loan fund at the University of Arkansas School of Medicine.

The gavel, symbol of the office of the president of the Arkansas Medical Society, passes from Dr. Joseph A. Norton to Dr. H. W. Thomas. Inaugural Banquet, Tuesday, April 23, 1968.

felt, our concern will be reasonable, our participation will be regular and meaningful.

The Medical Center—the schools and the hospital—are always a matter of interest to you and me. And this past year has seen increasingly active liaison between myself and Dean Shorey, Mr. Whaley, the faculty, and the students. And we must increase these contacts, with each and every one there. Important curriculum changes are being considered now. The Regional Medical Program may well become the mainstay of all our postgraduate efforts. Some private medical practice will be the order, by legislative suggestion. The students seek contact with us—the practice of medicine is as truthfully theirs as our own. They need to see the best in us and our

practice and organization, and we need to hear their concerns and their questions and comments. Let us involve ourselves more with those in the Medical Center, not just critically, but also helpfully, and be a part of the planning that is going on there now.

We have maintained regular and fruitful contacts with our congressional delegation, and with our State officers and legislators—and this is a never-ending project that must grow and become more effective. I met with Mr. Wilbur Mills last Thurdsay, and bring this message from him:

"I send greetings to the Arkansas Medical Society and best wishes for a successful meeting. Please be assured of my high and warm regard for the positions of the Arkansas Medical Society at all times, and of my availability to your leadership for consultation on any matter of common interest."

We don't always get what we want from our governmental representatives—but they are available, accessible, and do listen—and they do depend on their total constituency for their jobs. So we have a responsibility—not only to let them know our thoughts, but also to make ourselves heard and understood at home. To my mind, the kind of responsible involvement I have referred to is the best course here.

I do hope that ARKPAC, newly reorganized, will help us here, and I commend that organization to you as a worthy effort and a channel for effective political action.

I do hope the past year has resulted in some real accomplishment. Only time will tell. There is so much to do. Mainly, though, I hope for you and for me an attitude—of interest, of participation, of helpfulness, of involvement, of reality, of positive action.

Some tell us we are not what we ought to be—let us find out. Some tell us there are gaps in the delivery of medical care—let us work to find this out locally. Some say the entire system of medical training and of medical economics, and of medical practice must change—let us work to study and find out for ourselves. Let us resolve to meet every challenge to our system with a willingness to listen, to learn, to study, to work, to prove our points, or to lead in the movement to any new position.

This Society and its Auxiliary are really like a sleeping giant—so much talent and energy and knowledge—and only a small portion has been tapped—only a few of you are involved, yet only a small portion of your time and money is given to real study and consideration of the care and nurture and advancement of our practice and our organization.

Very soon now, Dr. H. W. Thomas will take this presidency. No one is better qualified, more dedicated to the ideals and ethics of medicine or to the practice of medicine as we know it. No one is better equipped to serve us as our president. But Wally cannot do it alone—or with just a handful of old stalwarts.

I ask you now—all of you—young and old—presently involved or not—critical or submissive—get up—get out—get around—invite Wally to your Society, and let him meet with local leaders in your community. Invite the Welfare, the Comprehensive planners, the Regional Medical Program, the Rehabilitation and the Blues—all we are involved with. Find out Arkansas' health posture and program, and be a part of guiding it to goals that are realistic and meaningful. Make of the Society and of medicine in Arkansas the force for good, the leader in health, that it was meant to be. Thank you.

The Speaker referred the President's Address to Reference Committee No. 1.

The Chairman of the Council, T. E. Townsend, presented the following report covering Council actions since publication of the report in the March Journal.

REPORT OF THE COUNCIL

The Council of the Arkansas Medical Society met Sunday, April 7th, and transacted the following business:

I. Adopted a resolution commending Mrs. Mason Lawson for her election as vice president of the American Heart Association.

II. Authorized Mr. Schaefer to turn over to the Auxiliary the responsibility for a reception for Mrs. Long upon her installation as president of the American Medical Association office. The Council also increased the allocation for this project to $2,000.

III. Approved the recommendations of the Sub-Committee on State Health and Medical Resources for Civil Defense.

IV. Voted to pay travel expense for the chairman of the 21-Man Committee to attend the monthly meetings of the Executive Committee with the Welfare Commissioner.

V. Increased the 1968 contribution to the Arkansas Chapter of the Student American Medical Association from $200 to $250.

VI. Received for information actuaries' estimates that the cost in dues to the Medical Society for lowering the age for life membership from 80 to 65 years would be:

Dr. H. W. Thomas, president; Dr. Ross Fowler, president-elect; and Dr. Thomas E. Townsend, Chairman of the Council.

The House of Delegates in session, Wednesday, April 24, 1968.

Year	Number of Doctors	Dues
1968	84	$ 6,300
1969	96	7,200
1970	102	7,650
1971	112	8,400
1972	121	9,075
1973	130	9,750
1974	138	10,350
1975	153	11,475
1976	165	12,375
1977	174	13,050

VII. Voted to cooperate with the Pulaski County Medical Society in co-sponsoring a booth on Health Careers at the State Fair in Little Rock in October.

VIII. Approved a resolution from the Rural Health Committee recommending that the Society formulate and help to implement a program to encourage physicians to utilize rural home health services.

IX. Directed the Executive Vice President to write the Society's attorney requesting an opinion on the legal necessity for the "participating physicians" clause in Blue Cross-Blue Shield contract.

X. Voted to recommend to the Society that it continue to hold its annual meetings in Hot Springs until improvements are made in the physical facilities in other Arkansas cities.

XI. Discussed increasing the number and length of Council meetings in order to take care of the increasing amount of business.

XII. Nominated Dr. Wendell Ward of Fayetteville and Dr. Merlin B. Kilbury, Jr., of Little Rock, for a position on the State Cancer Commission.

XIII. Elected Dr. Martin Eisele to succeed himself for a 4-year term on the Board of Medical Education Foundation for Arkansas.

XIV. Nominated Dr. J. P. Price, Jr., to succeed himself as a member of the Board of Trustees of Arkansas Blue Cross-Blue Shield. The Council resolved that in the future a Medical Society member of the Board of Trustees of Arkansas Blue Cross-Blue Shield will not be nominated to succeed himself on the Board until after he has been off the Board for one year. An exception to this rule will be made in the case of a physician member of the Board who has been nominated as president of the Board of Trustees of Blue Cross-Blue Shield.

XV. Directed the Executive Vice President to prepare a list of appointments and elective offices of the Society for a study by Dr. Morrison on the advisability of extending the same rule to all offices and appointments.

XVI. Nominated Dr. B. P. Raney and Dr. Thomas Durham to succeed themselves for 5-year terms on the Arkansas State Arbitration Commission.

XVII. Approved the following nominations for the ARK-PAC Board of Trustees: Dr. Henry Crane, Chairman, Pine Bluff, Dr. Asa Crow, Paragould, Dr. Eldon Fairley, Osceola, Dr. Jean Gladden, Harrison, Dr. Paul Rogers, Fort Smith, Dr. William Orr, Little Rock, Dr. Kenneth Duzan, El Dorado, Dr. Paul Wallick, Monticello, Dr. Wayne Lazenby, Dumas, Dr. Porter Rodgers, Jr., Searcy, Mrs. W. Payton Kolb, Little Rock, and Mrs. C. D. Burroughs, Pine Bluff.

XVIII. Heard a recommendation from Dr. Elvin Shuffield that physicians encourage good candidates to run for the Arkansas Senate and House of Representatives.

XIX. Directed that a telegram be sent to Arkansas senators opposing the appointment of Wilbur J. Cohen to the position of secretary of the Department of Health, Education and Welfare.

The Supplemental Report of the Council was referred by the Speaker to Reference Committee No. 1.

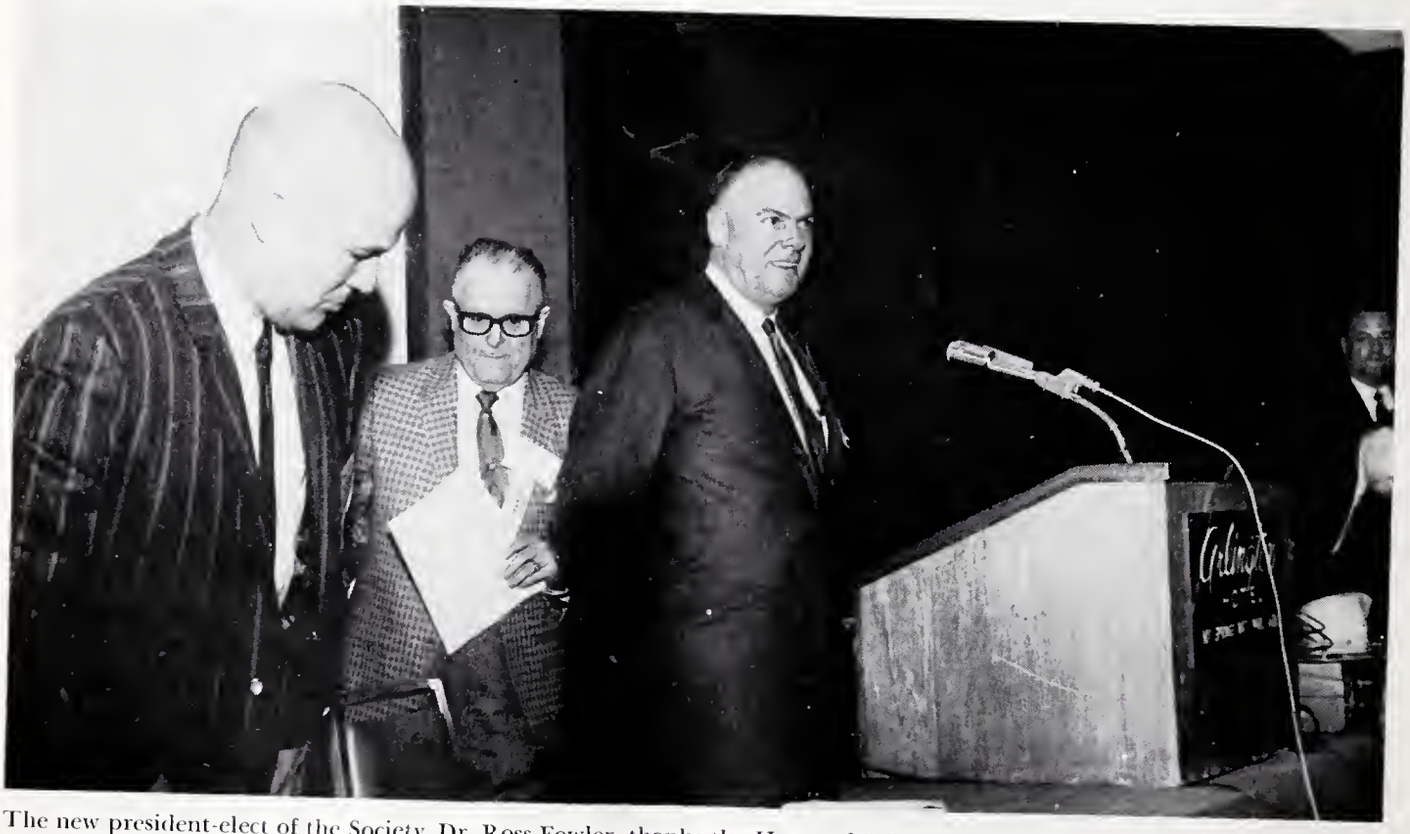
Speaker Price called for reports of committees. Elvin Shuffield, chairman of the Committee on Medical Legislation, presented a report. The report was accepted for the information of the House.

At the suggestion of Past President Joe Verser, the House gave Dr. Shuffield a standing vote of thanks for the work that he is doing for the Society each year with the Legislature.

Mr. Joe E. Elliott, Vice President of the Arkansas Blue Cross-Blue Shield, Inc., presented the following report to the House of Delegates:

Appearing here before a professional audience, it should not be necessary to go into any depth on the history of payments of physicians' fees. In its 20 years existence, Arkansas Blue Cross and Blue Shield, Inc., in paying for physicians' services, has historically used fee schedules, as requested and agreed to by the State Medical Society. Let me say that our existing fee schedules in effect today are *outdated* and *outmoded* as far as today's professional charges are concerned. Our Indemnity Fee Schedules are completely inadequate in today's economy. The first and obvious reason for this is that of geography. The cost of doing business for a physician is rising steadily. In metropolitan areas, costs are higher than in rural areas. Some sections of our country have higher costs than in other areas. Even in our own state of Arkansas, we see a great differential in physicians' charges. So Blue Shield is behind the times in satisfying the public as far as the percentage of the physician's charges that we are meeting through prepayment. *You* as a physician and we as administrators of Blue Cross and Blue Shield are not living in normal times nor or we dealing with the same social and economic problems that existed five, six or seven years ago. The population—our customers and your patients think differently than you and I about the basic philosophy of medicine

Members of the Fifty Year Club of the Arkansas Medical Society in attendance at breakfast hosted by Society for club members on Tuesday, April 23rd.



The new president-elect of the Society, Dr. Ross Fowler, thanks the House of Delegates for electing him to the office. In the left foreground are vice speaker Dr. Amail Chudy and Speaker Dr. J. P. Price. House of Delegates meeting, April 24, 1968.

or Blue Cross and Blue Shield. In fact, they could care less. Pressures existing on medicine and Blue Cross and Blue Shield today are more forceful and more effective than ever before. For example, how many of you here today—just five short years ago—would have imagined that in the state of Arkansas we, Blue Cross and Blue Shield, would be disbursing for health care service for all classes of citizens a total of $60 million annually? Would you believe that in just two very short years, or less than two years, again because of Public Law 89-97, this $60 million, as near as we can estimate, will jump to more than $125 million. Gentlemen, with these problems ahead of us, I am not sure that we are smart in arguing about whether we should or should not have Participating Physician's Agreements in Arkansas. I am not sure that we are very prudent in arguing about whether there should or should not be a different payment to Participating Physicians versus Non-Participating Physicians. I am not sure that we are guaranteeing our professional longevity by delaying in the development of the best Usual, Customary and Reasonable Fee Program for our state. Forty Blue Shield Plans have already developed and have in effect a Usual, Customary and Reasonable Fee Program.

Many many times in my 15 plus years with Blue Cross and Blue Shield have I realized that the Good Lord has smiled with favor on all of us—the entire health care community. While I realize that we are where we are today because of a unique relationship that has existed in various degrees throughout the country and here in Arkansas between medicine and Blue Cross and Blue Shield, for us to exist in the immediate future in the free enterprise system, we, both the Medical Society and Blue Cross and Blue Shield, must find ways to strengthen our relationship and confidence in one another by jointly developing what is best for the population of this state as far as prepaid medical care is concerned. To be downright selfish about the matter, this must be accomplished if we are to exist without complete governmental control.

Let us briefly examine some of the pressures that are now upon us. The Blue Cross and Blue Shield Plan as well as all Blue Cross and Blue Shield Plans throughout the United States have an ultimatum from the largest group employer in the United States that effective January 1, 1969, we must have available a Usual, Customary and Reasonable Blue Shield Plan in effect in Arkansas or we will lose better than 32,000 members.

All of you know and as I mentioned a moment ago, as of January 1, 1970, Title XIX must be effective in the state. For all government programs, the surgical-medical portion of these programs must be on the usual, customary and reasonable fee concept. Our organization, to remain competitive and to remain in the number one position in providing health care service through the prepayment system, must have a usual, customary and reasonable fee approach for surgical-medical care in the state of Arkansas without delay.

As most of you know, we are now attempting to develop a strong usual, customary and reasonable fee concept as requested by the Arkansas Medical Society. We feel that this concept should be developed using current physicians' usual fees as submitted by the physician, because by so doing, we would be fair in paying on current physicians' charges as reported by the physicians themselves.

I think at this point we should lay our cards on the table and advise you that our competitors or even Arkansas Blue Cross and Blue Shield could develop a type of usual, customary and reasonable fee program and start selling it as early as the first of next month. How could we do this? We simply would be disregarding any relationship or feelings toward the professional providers, establish our own professional fee committee and determine for ourselves what would be reasonable or prevailing based on historical charges which we have in our computer.

In a nine Plan area, Blue Shield has lost what is known in the industry as auto subscribers to the commercial insurance industry, simply because the commercial insurance industry developed their usual, customary and reasonable concept, making all determinations themselves and paying only what *they*, the insurance company, determined as reasonable. If the physicians didn't like the allowance, that was too bad.

We realize it is more painful, more road blocks and more discouraging when we try to maintain the strength of the two-way street between the Medical Society and Arkansas Blue Cross and Blue Shield. This automatically slows us both down. It shouldn't, but it does. We are convinced this is one of the big reasons that it has

1968-69 Officers of the Arkansas Medical Society. Front row, left to right: Amail Chudy, Vice Speaker; Joseph A. Norton, past president; John P. Price, Speaker of the House; Thomas E. Townsend, Chairman of the Council; H. W. Thomas, president; Ross Fowler, president-elect; Elvin Shuffield, secretary; Ben N. Saltzman, Treasurer; Paul Gray, Councilor; Joe Veiser, Past President; back row, left to right: Jack W. Kennedy and Henry V. Kirby, councilors; L. A. Whittaker, past president; Councilors Stanley Applegate, A. S. Koenig, C. C. Long, John Wood, Karlton Kemp, Bascom P. Raney, Kenneth Duzan, Hugh Edwards, James Morrison, L. J. Pat Bell, and W. Payton Kolb. Not shown are: First Vice President Harry Hayes, Jr.; Second Vice President, C. F. Wilkins, Jr.; Third Vice President Guy U. Robinson; Journal Editor Alfred Kahn; Councilors Eldon Fairley, Paul Millar, Wayne Lazenby, George F. Wynne, Robert F. McCrary.

ARKANSAS MEDICAL SOCIETY OFFICERS FOR 1968-69. Seated, left to right: Thomas E. Townsend, Chairman of the Council; H. W. Thomas, president; Ross Fowler, president-elect; Elvin Shuffield, Secretary. Standing are J. P. Price, Speaker of the House of Delegates (left) and Amail Chudy, Vice Speaker of the House of Delegates.

taken six months to receive from the physician population in the state of Arkansas a little more than 800 Surveys in which we asked that the physicians please tell us what their usual charges happen to be, in order that this organization could reimburse them their usual fees so long as they were customary and reasonable, and even if the professional fee was out of range, if the physician would tell us to what extent his services were above normal, we could make additional payment. What could be better for the physician?

We are receiving some pot shots from a few physicians about the Usual, Customary and Reasonable approach. We expected this. However, so there is no misunderstanding, let me report to you there are 1,500 practicing physicians in the state of Arkansas and every single practicing physician, with the exception of four, are Participating Physicians with Arkansas Blue Cross and Blue Shield. We receive approximately five new physicians' Agreements each week. Let me repeat, there are only four physicians in the entire state that are "Non-Participating Physicians" with Blue Cross and Blue Shield.

Gentlemen, we predict to you that we, Arkansas Blue Cross and Blue Shield *will have,* within the immediate foreseeable future, a Usual, Customary so long as reasonable and Prevailing Program, and we have enough confidence in the physicians in this state that we will have this *Program which will be coordinated with and endorsed by the State Medical Society.* It appears that we are just about to go over our first hurdle in developing such a Program. It now appears that within the next three weeks we will reach 1,000 Physicians' Surveys and will be able to make our computer run to determine physicians' charges for the various services being rendered by physicians in this state. We have had several people ask, "Why do you need 1,000 Surveys?" "Why is 1,000 so magic?" There is no magic in the 1,000 figure, and the only reason that we have selected it is that we feel that we must have a minimum of 75 per cent of the physicians' charges in before we can determine what physicians' charges are. We could have determined what the usual and customary charges were on the first 100 booklets that we received, but we would have been in a heck of a fix, or let me change this—you would have been in a heck of a fix if we had taken this approach. Particularly if the first 100 booklets were the lowest charges in the state. There is only one drawback to the Usual, Customary and Reasonable approach and that is our customers and *your patients* have the final say so as to whether or not they can afford a Usual and Customary Program, and this is something that neither of us should overlook. Mr. John Q. Public, in the final analysis, is our judge and jury, and let me say one further thing in this regard, there is every indication to believe that John Q. Public likes what he sees by having people covered under government programs. He likes what he sees in government rules, regulations and guidelines placed on the health care providers. More and more we are getting feedback from the market place that this is the answer to the health care problems of this country and that is government controls.

Gentlemen, you have heard it before, but let me personally say it *one more time,* "We feel there is still time, we feel that it is vital that organized medicine—your State Medical Society, Blue Cross and Blue Shield and the organized hospital community—join together and jointly solve our problems, realizing that *we will not be able to please everyone.*" We would predict that 99 per cent will be happy with the results, but let us keep dragging our feet, and we predict that 99 per cent will be most unhappy, and some day in the very near future will probably say, "Why didn't we do something about it?"

Mr. Elliott's report was referred to Reference Committee No. 1.

Speaker Price called on Winston Shorey, Dean of the Medical School, for a report on the School of Medicine.

Dean Shorey advised the members of the House of the death of Miss Florence Lawson, who had been affiliated with the School for 41 years and was administrative assistant to the Dean at the time of death on April 19th. Speaker Price called for a moment of silence in memory of Miss Lawson.

Dean Shorey presented the following report on the School of Medicine.

Mr. Speaker and Members of the House of Delegates, I am deeply appreciative that the physicians of Arkansas have the degree of interest in our School of Medicine that this body will spare time from its busy schedule, permitting me to present a report of our school's activities and problems.

Mrs. C. C. Long of Ozark will be installed as president of the Woman's Auxiliary to the American Medical Association at the June meeting in San Francisco. The pearls she wears were presented by President Norton on behalf of the Society.

Past presidents of the Arkansas Medical Society in attendance at breakfast on Wednesday, April 24th. Front row, left to right: W. H. Mock, L. A. Whittaker, Wm. A. Snodgrass, Jr., Joe Verser. Back row, left to right: James M. Kolb, Sr., C. Lewis Hyatt, Joseph A. Norton, Euclid M. Smith, W. R. Brooksher, and C. R. Ellis.

The State of Arkansas has a medical school which is fundamentally sound and of excellent quality as far as its resources permit it to go, an institution with the potential for becoming a truly great medical school. At the same time, it is woefully underfinanced, understaffed, and without sufficient space and facilities.

FACULTY

The heart of any school is its faculty. The most pressing concern of the dean of a medical school is the recruitment and retention of high caliber faculty members. We have some very definite assets that assist us in recruiting excellent faculty members. Probably most important is the presence of a group of faculty members who cooperate well together, who are dynamic and work hard to develop a progressive medical school, and who are eager to attract additional high caliber faculty members to the school. A candidate for a faculty position usually warms to our existing faculty and is attracted toward becoming a member of it. Another asset is the fact that Arkansas is a very pleasant state in which to live, and most visiting faculty candidates are highly impressed with it as a place in which to make their homes and raise their children. A third and very significant asset is the potential of the University of Arkansas Medical Center for becoming a truly great institution. Arkansas is one of the states in which the state medical school is the only institution for medical education. Therefore, it offers potential for development not only from state resources, but also from the private resources which would go to a private institution if such existed within the state. The progressive and enthusiastic type of faculty member which we need and want in our School of Medicine is attracted to an institution in which he feels he can be a vital part in progress and development.

We also have deficits at our medical school relative to recruitment and retention of faculty. While our salary structure has improved, it is still low in comparison with most other medical schools. The number of full time faculty members in our School of Medicine is very low relative to the size of the student body. Our facilities are inadequate in size to accommodate the number of faculty that we should have for the number of medical students that we are teaching. For a period of time these deficits can be offset by the potential for development and progress which the faculty feels should and will occur. However, the time comes when this potential must be fulfilled. Otherwise, disillusionment and discouragement sets in, and a medical school can lose the gains that it has made. Let me justify the statement that our School of Medicine has an inadequate number of faculty. For the forthcoming fiscal year, we have 117 full time faculty positions budgeted within the School of Medicine. An additional 28 full time faculty members are provided through the Little Rock Veterans Administration Hospital. This makes a total of 145 full time faculty members for a student body that will number 395. On page 347 of the medical education issue of the *Journal of the American Medical Association* dated November 20, 1967, a table presents the national average of full time faculty members in medical schools in relation to number of medical students. Using this table, one can readily calculate that 87 additional full time faculty members are required to bring our faculty strength to the national average. In addition to the funds for supporting this number of faculty, we also need the additional space in which to house them. Obviously, this is an objective requiring a large amount of additional money.

I will conclude my comments regarding the faculty on an optimistic note. We will begin the coming school year with every department and division chairmanship filled.

STUDENTS

The student body of the University of Arkansas School of Medicine is a fine group of young men and women. It is growing in numbers, not only because the size of the freshman class has been increased, but also because the academic qualifications of those admitted is steadily improving.

Let us first look at the number of students admitted. In 1960, the size of the first year class was increased to 105. Three years ago another increase was made, bringing the number to 110. The latter increase was made to qualify the school for receipt of federal funds provided for direct assistance to medical education. A first year class of this size places our school among the large medical schools of the country. Of eighty-four four year medical schools in full

Dr. W. H. Mock of Prairie Grove, a past president of the Arkansas Medical Society, made a $500 contribution to the Medical Education Foundation for Arkansas at the Inaugural Banquet, Tuesday, April 23, 1968.

The Inaugural Banquet, Baltroom, Arlington Hotel, Tuesday, April 23, 1968.

operation within the United States, twenty-eight admit a larger first year class.

More significant than the number of students admitted, of course, is the number graduated each year. I have expressed my concern previously before this body regarding the high attrition rate experienced among our freshman students, and it was in an effort to decrease this that the Arkansas Medical Society lent its effective assistance in obtaining legislation to provide for admission of a limited number of non-residents of Arkansas to the freshman class. Let me again express the appreciation of the administration and faculty of the School of Medicine for this assistance. As I am sure you all know, the law was changed; and this fall we will have non-resident students for the first time. We received 221 applications from non-residents outside the State of Arkansas, many with outstanding qualifications. We are admitting only two of these. This small number probably surprises you, and I must say that we had anticipated taking a larger number. However, we received last year, and again this year, a greater number of applications from Arkansas residents with acceptable academic qualifications. This is very encouraging and, if the trend continues, provides assurance that the number of graduates of the school will fall into a proper relationship with those admitted. Until now we have not been able to establish meaningful lower limits of acceptable academic qualifications for admission because filling a class of 110 necessitated waiving such limits as the final positions were filled.

The significance of the preceding comments are apparent upon examining student body statistics. In 1962 we graduated 74 MDs. Last year we graduated 87, and this year we expect to have 86 graduates. There currently are 91 students in the junior class and 97 in the sophomore class. These second and third year students have made their adjustments to medical school, and it will be very disappointing if they do not all graduate. It is the current freshman class, however, that provides the most encouraging and, at the same time, alarming statistic. With midyears completed, 108 students remain in the freshman class. Unfortunately, we can anticipate that this number will decrease by the end of the year; but it appears reasonably certain that more than 100 will continue on into the second year. I express alarm at this number, as well as pleasure, because our faculty is not large enough and our facilities are inadequate for this number of students.

We have attempted to keep informed regarding the activities and location of practice of our graduates through annual contact with them since 1962, the first graduating class with which I, as dean, have been involved. Because military service and post-graduate training disperse a class all over the world and keep a graduate occupied for several years, considerable time must elapse before significant information can accumulate. While the classes graduating in 1962 and 1963 have not completely settled down yet, certain observations regarding them can be made. There were 74 graduates in 1962 and 77 in 1963, making a total of 151. We have maintained contact with 137, or 90 per cent of these. Of this 137, 55 are still in training, 20 are in military service, and 64 are in practice. Of the 64 who have entered practice, 43, or 67 per cent, are practicing in Arkansas. Our school, in common with all others, is experiencing an increase in the number of its graduates who enter training for a specialty, and a corresponding decrease in the number entering general practice. Of the 64 members of the 1962 and 1963 classes who have entered practice, 43 are in general practice. This is 29 per cent of the total graduates in these two classes. While this per cent is high when compared with the graduates of most other medical schools; it represents a decrease of about 10 per cent when these classes are compared with the class that graduated in 1959.

We, at the School of Medicine, in common with the Arkansas Medical Society, the AMA, the Academy of General Practice, and many others, are concerned with the problem of providing family doctors. We are keeping informed with regard to programs that are under consideration at the national level to provide standards of training for family physicians, of the proposal endorsed by the Academy of General Practice to establish family practice as a specialty in its own right, and of the agreement between the Boards of Internal Medicine and Pediatrics to join in a family practice program. We are preparing to accommodate to these program standards as they emerge, and to establish family practice training programs here in Arkansas.

The outgoing president, Dr. Joseph A. Norton, administers the oath of office to the new president of the Society, Dr. H. W. Thomas. Inaugural Banquet, Tuesday, April 23, 1968.

Past presidents of the Arkansas Medical Society introduced at the Inaugural Banquet on Tuesday evening were (left to right) Drs. C. R. Ellis, Joe Verser, William A. Snodgrass, James M. Kolb, Euclid M. Smith, W. H. Mock, H. King Wade, Sr.

CURRICULUM

Progress and changes in medicine necessitate that medical education keep pace. Furthermore, the huge volume of medical information that has developed in recent years makes it impossible to teach all of it during the four years of medical school. The time has passed when an individual receiving the M.D. degree can go out from his medical school feeling that he has a comprehensive working knowledge of all that is significant in medicine.

We, in common with many other medical schools, are subjecting our program in medical education to critical review and analysis. A curriculum committee, after two years of work, submitted a detailed report early last fall. This report contained a detailed analysis of our current curriculum, concepts and ideas for curricular change obtained from interviews with all the departments of the School of Medicine, and recommendations of the curriculum committee. This curriculum committee report was published and distributed to the entire faculty. The faculty then was brought together for a day and a half in what is known as a faculty retreat for the purpose of concentrating all faculty thought on our future program in medical education. This was conducted as a workshop conference with interspersed plenary sessions. Dr. Joe Norton, President of the Arkansas Medical Society, and Dr. Gilbert Dean, then President of the Pulaski County Medical Society, participated with the faculty most effectively in this retreat. Certain concepts emerged from this meeting which require further refinement, and which provide additional material for the curriculum committee to mold into a working educational program. These concepts include: recognition by the School of Medicine of courses taken in undergraduate work which are similar to those given in medical school; earlier patient contact for medical students, permitting the students to obtain clinical experience during the first two years of medical school; opportunity for the medical student to make earlier career decisions and relate his course work in medical school to the area of medicine he hopes to follow; greater interrelation of basic science material with clinical medicine, with much less distinction between the basic science years and the clinical years; and the need for special emphasis on making available to students oriented toward family practice special course work designed for them.

Major changes in a medical school curriculum must be accomplished with careful planning, and evolution is a much less disturbing mechanism than revolution. I anticipate that changes along the concepts outlined will gradually occur over the next few years. Additional faculty members are necessary for implementation of many of the proposed changes.

FINANCING OF THE SCHOOL OF MEDICINE

My preceding comments have indicated that expansion of both faculty and facility are essential at our School of Medicine. Let me repeat that we now need 87 additional full time faculty members to bring our faculty strength to the national average, and we need additional space in which to house them.

This statement of requirements is not made for a medical school that has sat on its hands doing only what was possible from funds appropriated by the state legislature. Indeed, I have no hesitation in saying that Arkansas would not have an accredited medical school today if the school itself were not able to generate funds in addition to those supplied by the state. This comment can be justified by the figures of the medical school budget projected for this coming fiscal year. In the category of faculty salaries, we have proposed an expenditure of $1,410,000 from state funds. Another $1,135,000 is budgeted for faculty salaries from other than state sources. The proportion of state to non-state funds is the same when one looks at the total budget of the medical school. We are projecting for the coming year a total direct cost budget of $2,352,000 from state funds, and an additional $1,953,000 from non-state funds. These figures gain further significance when we compare them with those of previous years. In seven years, the state support of the medical school has increased by $867,000, or 58 per cent. This is approximately 8 per cent per year, uncomfortably close to the annual rate of monetary inflation. On the other hand, support of the medical school from non-state funds in seven years has increased by $1,401,000, or 254 per cent, an annual increase of 36 per cent. The bulk of these non-state funds, representing about 44 per cent of the direct operating cost of the medical school, come from federal and voluntary health programs and are obtained through the initiative and know-how of the faculty. This

has two very significant implications for the future. First, retention of a faculty with the capability for generating funds of this magnitude requires that a greater effort be made by the state toward fulfilling the potential of the School of Medicine. Second, the state does not have to bear the entire cost of progress. Every dollar that the state puts into development can be matched by additional money.

HOSPITAL

The University Hospital is an administrative entity, and not the direct responsibility of the School of Medicine. However, its state of health is of vital concern to the faculty and to our teaching program. The rate of increase in state funds which I gave for the medical school applies also to the hospital, and 8 per cent per year is far from adequate to keep pace with the escalation that has occurred in costs of hospital operation, to say nothing of increasing the scope of operation. As the medical school has had to look for additional sources of financing, so also has it been necessary for the hospital to work toward more self-sufficiency. The sources of funds that can assist a medical school are not available for patient care. The only mechanism available for a hospital to increase its self-sufficiency is through providing care for patients with resources to pay for them. To date, increases in income for the hospital have not been sufficient to keep pace with its financial needs. The following steps have been taken and are in progress to help overcome this problem. In accord with an act of the 1965 legislature, renovations have been accomplished to provide additional accommodations for private patients referred to members of the faculty. A total of 54 beds now can be made available for private patients. In support of the additional private beds, an area in the main lobby of the hospital has been enclosed to provide consultation and examining rooms where members of the faculty can see referred private ambulatory patients. A letter has been prepared to send to all physicians in the state telling them of these facilities. We believe that it is good for the medical school to have a limited number of private patients admitted to the University Hospital. Faculty members with special skills should have the opportunity to exercise these skills, and the education of medical students is broadened through participation in the care of private patients. However, this development will not solve all of the financial problems of the University Hospital. Additional support for service patients is essential, either through direct legislative appropriation for this purpose or through the mechanisms whereby an increased number of patients with third party resources for hospitalization are referred to the University Hospital.

CONTINUING EDUCATION

I will close with a comment on progress being made in the development of a program in continuing education for physicians in practice. This is an area of medical education which the School of Medicine has attempted to meet through short courses given at the Medical Center, but we recognize that this has been far from adequate. The implementation of the Arkansas Regional Medical Program now makes it possible for the School of Medicine, in collaboration with the medical profession itself, to develop this field of education to meet the needs of the practicing physician. During the past year, the staff of the Arkansas Regional Medical Program has visited many county medical societies and hospital staffs to inform them of the program and to gain ideas as to how the program should be molded. Many of you here today have participated in these meetings out of which plans are evolving for a comprehensive program in continuing education for physicians; training programs for nurses and individuals in the allied health professions; projects for assisting physicians in the care of patients with heart disease, cancer and stroke; and mechanisms for recruitment of additional people into the health field. Without elaborating further on the Arkansas Regional Medical Program here, I urge you to visit its exhibit where there are folks who would like to discuss the program with you.

Dr. Shorey's report was referred to Reference Committee No. 2.

Henry Crane, Jr., of Pine Bluff, chairman of ARKPAC, presented the following report.

ARKPAC REPORT

Henry Crane, Jr., M. D., *Chairman*

Mr. Speaker and members of the House of Delegates:

I welcome this opportunity to mix a little politics and medicine with you.

I hope in a few minutes to better acquaint you with ARK-PAC and AM-PAC — to explain to you their function—and encourage you, the

physicians of Arkansas, to participate more fully in political activity.

Today politics *is* a part of medical practice and I'm sure each of you is daily becoming more aware of it.

In June, 1967, the Board of Trustees of the American Medical Association warned:

> Between now and November 1968 our nation will be in the midst of a most intensive campaign by opposing forces to control the direction in which our nation will move: toward one in which decisions are made ever more frequently by centralized super-authority, implemented by coercive laws and regulations; or toward an opportunity society in which individual performance and a healthy competitive climate operate to provide an optimum degree of decision making by the private sector and at those levels of government closest to the people.

Historically, strong, politically-oriented individual physicians, with sound logic and personal dedication, persuaded legislatures to enact legislation to protect and advance the excellence of medical care, and to reject legislation detrimental to the public health and the practice of medicine.

Ultimately, the demands of legislatures became too great and too numerous to be serviced by the dedication and abilities of individuals, and to service these demands, our medical societies established legislative committees, to keep us, individually, informed, and to inform our legislators.

But predictably, legislators became more and more enamored of health legislation, and some saw an opportunity to convert the traditional humanistic and charitable acts of physicians to state paternalism. Like Mother, God, and Country, "health" became a catchword of political expediency. Sound counsel from medicine, warnings of the dangers to the quality of care to which our patients are entitled, warnings of the inability of our health facilities to handle uninformed and unjustified demands, warnings of the economic requirements of proposed programs—all were ignored in the name of "political expediency", "paternalistic government", "creative federalism", or the "great society".

Even before the PAC movement became a reality (in 1961), its role in medicine was evident. If legislators can not be persuaded to seek, or even to heed, the counsel of those who *know* the health and medical needs of our society, then legislators must be elected who *will* seek the advice and counsel necessary to rational and responsible legislation.

And because federal law prohibits participation in elections by medical societies, physicians aware of the need of medicine to be heard, organized the PAC movement—our medical political action committees.

These committees are organized:

(1) To strive for the improvement of government by encouraging and stimulating physicians to take a more active and effective part in governmental affairs.

(2) To encourage physicians to understand and evaluate the nature and actions of government, the significance of political issues, the records of officeholders, and the pertinent qualifications of candidates for elective office.

(3) To assist physicians to organize themselves for effective political action to promote civic responsibility and integrity in government.

Today, a medical political action committee exists in each of our fifty states, and in the District of Columbia. AMPAC (American Medical Political Action Committee) offers each of these autonomous and independent PAC's services and materials and programs to increase and promote membership and effectiveness.

It has been my pleasure and privilege the past two years to attend the national AMPAC meeting and workshop in Washington, D. C., along with four other delegates from Arkansas' Medical Political Action Committee.

I cannot—in a brief period of time—begin to describe this experience to you or report to you the enthusiasm present in each delegate at this meeting.

These annual meetings are designed to acquaint us with how to work effectively, politically; to gain knowledge and political know-how to help elect men to public office; dedicated to better government and better medicine; and to help us organize similar workshops at a state level.

We met with such men as Senator George Murphy of California, Representative Laird of Wisconsin and House Representative Leader Gerald Ford, to name three of approximately 15.

But to be sure our exposure wasn't one-sided, we met with Senator Muskie of Maine and Sen-

ator Inouye of Hawaii, both very liberal. I was impressed by the open honesty of these two men and perhaps the ignorance of Senator Muskie.

I gained another important bit of knowledge —that you and I are not alone in our feeling of urgency of sending competent and able men to congress. Physicians from Oregon, Ohio, Pennsylvania and Georgia feel as strongly as you and I.

It isn't difficult sometimes to feel that perhaps the South is the last fortress of constitutional government. Perhaps it will surprise you, as it did me, to learn that the four strongest state PAC organizations are New Mexico, Oregon, Pennsylvania and Ohio, in percentage of M.D.'s and dollars.

To give you an idea of the growing effectiveness of PAC organizations, there are 435 congressional districts in the United States. In 1966, state PAC's participated in campaigns in 131 districts. Over 80% of the candidates supported by state PAC's were elected. In 1966, in New Mexico 20 of 24 candidates for the New Mexico state legislature, who received support from NM-PAC, were elected.

In Arkansas in 1966, one congressional candidate, after he was elected, stated that ARK-PAC played an important role in his election—and I would like to see this be only the beginning.

You *can* be effective! You *can* play an important role in government! If you will.

I want to urge each of you, when you return to your county societies, to *talk ARK-PAC up!!* Urge your fellow physicians to become politically oriented and motivated at the national level, state level and local level. Even the candidates of your school board elections should have your scrutiny!

PAC membership is $25.00 annually. Yes, I know it is another $25.00 out of your pockets but I believe it is a well spent $25.00.

Membership dues can be mailed to me in Pine Bluff.

Membership in ARK-PAC isn't meant to take the place of what you are already doing as individuals. Instead, it functions to assist *you* to elect better, more responsible, representation in congress.

Your membership and your participation are *needed* today for medicine.

I thank you.

Dr. Crane's report was referred to Reference Committee No. 3.

A delegate, Dr. William S. Orr from Pulaski County, presented the following two resolutions:

PULASKI COUNTY RESOLUTION
RE: NURSE SHORTAGE

WHEREAS, there exists a critical shortage of nurses throughout the state and nation, and

WHEREAS, physicians are vitally interested in nursing education and can offer significant assistance in the education of a nurse,

THEREFORE, be it resolved that hospitals involved with education of nurses be urged to include physicians on their governing boards and that agencies involved with accreditation of programs in nursing education be urged to utilize the assistance of physicians in establishing standards for nursing education.

BE IT FURTHER RESOLVED that physicians actively seek participation in nursing education both as individual teachers and as advisors to programs in nursing education.

BE IT FURTHER RESOLVED that this resolution be sent to appropriate institutions and agencies with nursing education and to the American Medical Association.

The Speaker of the House referred this resolution to Reference Committee No. 3.

PULASKI COUNTY RESOLUTION
RE: LIFE MEMBERSHIP

WHEREAS, the By-Laws of the Arkansas Medical Society provide that an active member shall have attained his eightieth year and shall have been a member of his county medical society in Arkansas or elsewhere in the United States continuously since beginning the practice of medicine, or has for fifty years been continuously a member of his county medical society in Arkansas or elsewhere in the United States before he is eligible for dues exempt Life Membership; and

WHEREAS, relatively few physicians are able to attain these requirements for the bestowing of such an honor; and

WHEREAS, no other known medical or specialty organization requires the attainment of this age and length of practice; and

WHEREAS, the American Medical Association grants a dues exemption at the age of seventy; and

WHEREAS, the loss of revenue to the Arkansas Medical Society from dues of those members qualifying at age seventy will be more than offset by the honor such action bestows;

BE IT THEREFORE RESOLVED that the By-Laws of the Arkansas Medical Society be amended as follows:

Chapter 1, Section 4, paragraph (1a)—delete paragraph (1a) and substitute:

"An active member who shall have attained his seventieth year, and upon recommendation of his county medical society, shall be granted the status of life member. Such member shall enjoy the full membership privileges and shall be exempt from the payment of further dues or assessments," and

BE IT FURTHER RESOLVED that the first reading of this resolution and proposed change be effected at the Annual Session of the Arkansas Medical Society at its meeting April 21-24, 1968.

This resolution was referred by the Speaker of the House to Reference Committee No. 2.

The chairman of the Committee on Medical Legislation, Elvin Shuffield, spoke briefly regarding billing for medical care of welfare patients. He stressed the importance of physicians submitting bills for care of welfare patients so that the Welfare Department would have a basis for cost estimates for payment of physicians' usual and customary fees.

The following resolution from the Arkansas Tuberculosis Association was presented to the House:

RESOLUTION FROM ARKANSAS TUBERCULOSIS ASSOCIATION

WHEREAS, the Arkansas Tuberculosis Association has for more than sixty years served the people of Arkansas as the vehicle through which interest and action on the treatment and control of tuberculosis has been promoted; and,

WHEREAS, the membership of the Arkansas Tuberculosis Association is drawn from the general public, the medical, nursing, rehabilitation, hospital, public health, business, and other disciplines concerned with the total tuberculosis program, both official and private; and,

WHEREAS, recent advances in medical science gives promise of beneficial changes in methods of treatment and hospitalization; and,

WHEREAS, this organization has financed a Study on Tuberculosis Control in Arkansas by unbiased, out-of-state specialists in the field; and,

WHEREAS, this study has recommended a CAREFULLY EVALUATED pilot program of treatment of tuberculosis in general hospitals; and,

WHEREAS, this pilot program at Jefferson Memorial Hospital, Pine Bluff, has been in progress less than one year; and has not allowed time to ascertain many aspects of total treatment and follow-up of patients; and,

WHEREAS, there are many unanswered questions which only a careful evaluation can resolve after an adequate trial of the new concept; and,

WHEREAS, publicity within the past months has been of such nature as to promote in the minds of the general public the yet unproven efficacy of the new concept of hospitalization; now,

THEREFORE, let it be resolved that the Arkansas Tuberculosis Association in session for its Sixtieth Annual Meeting in Hot Springs, Arkansas, on April 5, 1968, respectfully urges Winthrop Rockefeller, Governor of the State of Arkansas, Members of the General Assembly and the Arkansas Medical Society to retain the one specialized treatment center for tuberculosis in Arkansas, the Arkansas Tuberculosis Sanatorium, until such time as an unbiased evaluation shows the success of treatment of tuberculosis in general hospitals; be it further resolved that this Association urges consideration of utilization of the vacant beds at the Arkansas Tuberculosis Sanatorium for the treatment of the medically indigent of this State who are suffering from emphysema, chronic bronchitis and other respiratory ills and who are referred by private physicians; and,

BE IT FURTHER RESOLVED, that a copy of this resolution be directed to Winthrop Rockefeller, Governor of Arkansas; General Assembly of Arkansas; and, the President of the Arkansas Medical Society with the request that it be read at the Annual Meeting of the Society and its endorsement considered by the membership.

This resolution was referred by the Speaker to Reference Committee No. 3.

Speaker Price announced that the House would consider for final action the proposed constitutional amendment regarding items to be considered by the House during the annual convention. The proposed amendments read as follows:

AMEND CHAPTER XI of By-Laws to make present CHAPTER XI Section 1 and add as Section 2 the following:

Section 2. All items expected to be considered at the annual meeting of the House of Delegates

of this Society must be printed in the Journal of the Arkansas Medical Society in the month preceding the annual meeting. All resolutions to be submitted to the House of Delegates at the annual meeting must be received in the office of the Executive Vice President twenty days prior to said meeting. Any new business proposed during the first session of the House of Delegates of this Society must have a two-thirds majority of the attending delegates voting for such introduction into this Session. Any new resolution or other business proposed for introduction to this House of Delegates after the first session in each annual meeting must have two-thirds consent of attending delegates before its introduction.

Upon motion of John Kirkley and William S. Orr, the House voted to adopt the change.

The Speaker called the attention of the members of the House of Delegates to meetings of the Reference Committees and urged all physicians to take advantage of the opportunity to participate in the open hearings on the various reports and resolutions referred to each committee.

Speaker Price requested Mr. Schaefer to advise the House regarding vacancies on the State Boards. Mr. Schaefer announced that elections would be held immediately following adjournment of the House to select nominees for the First and Fifth congressional district positions on the Arkansas State Board of Health and the Fourth congressional district position on the Arkansas State Medical Board.

The Speaker then announced that the selection of the nominating committee for election of officers for the ensuing year would be made. Delegates from the various councilor districts held meetings on the floor and selected the nominating committee as follows:

First District, Eldon Fairley; Second District, Paul Gray; Third District, L. J. Pat Bell; Fourth District, Guy U. Robinson; Fifth District, George F. Wynne; Sixth District, Karlton Kemp; Seventh District, J. W. Trieschmann; Eighth District, F. R. Buchanan; Ninth District, H. V. Kirby; Tenth District, Guy Shrigley.

The president of the Society, Joseph A. Norton, presented his 1968 membership fee to the ARKPAC chairman, Henry Crane, and urged other physicians to do the same.

The first meeting of the House of Delegates adjourned at 3:35 P.M.

SCIENTIFIC SESSIONS

Six distinguished guest speakers from Cornell University Medical College of New York presented the scientific program. They were: Bruce Webster, Clinical Professor of Medicine; William J. Sweeney, Associate Professor of Obstetrics-Gynecology; Herbert Conway, Clinical Professor of Surgery (Plastic and Reconstructive); Albert Rubin, Associate Professor of Surgery in Biochemistry; Charles McSherry, Department of Surgery; Philip A. Zweifach, Department of Ophthalmology.

The First Vice President of the Society, Jerome Levy of Little Rock, presided at the first scientific session in Room "C" of the Arlington Hotel Conference Center, beginning at 8:30 A.M. on Monday, April 22. He called the meeting to order and announced the showing of a film on "Chronic Bronchitis", courtesty of Ayerst Laboratories. The scientific lectures were as follows: "Periodic Health Examinations—Their Value and Scope, Including a Review of the Results of 20 Years Consecutive Examinations on a Group of 200 Executives", Dr. Webster; "Carcinoma of the Vulva", Dr. Sweeney; "Reconstruction of Head and Neck after Cancer Excision", Dr. Conway; "Basic Aspects of Glaucoma", Dr. Zweifach; "Carcinoma of the Colon", Dr. McSherry; "The Theoretical and Medical Application of Collagen", Dr. Rubin.

At noon on Monday, a roundtable luncheon was held in the Main Dining Room of the hotel to give members an opportunity for informal discussion with guest speakers.

The second scientific session was presided over by David H. Pontius of West Memphis, Second Vice President of the Society. A film on "Modern Concepts of Epilepsy" preceded scientific lectures as follows: "Management of Burns", Dr. Conway; "Practical Aspects of Cataracts", Dr. Zweifach; "Radiographic Visualization of the Biliary Tract", Dr. McSherry; "The Management of Acute Renal Failure", Dr. Rubin; and "Adverse Reactions to Antibiotic Therapy", Dr. Webster.

On Tuesday morning, April 23, the third scientific session was held in Room "C" of the Conference Center with George F. Wynne of Warren, Third Vice President of the Society, pre-

siding. The Ayerst film entitled "Anorectal and Sigmoidoscopic Examination with Differential Diagnosis" was shown. The scientific lectures presented were: "Management of Ocular Trauma", Dr. Zweifach; "Surgery of Cleft Lip and Palate", Dr. Conway; "Hysterograms and Tubal Insufflations", Dr. Sweeney; Renal Transplantation", Dr. Rubin; "Management of Hyperthyroidism", Dr. Webster; "Cholecystectomy and Common Duct Exploration", Dr. McSherry.

RELATED MEETINGS

The Association of Tumor Clinic Staff Members in Arkansas met at 12:00 noon in the Fountain Room of the Arlington Hotel on Monday, April 22, with G. Thomas Jansen presiding. Robert L. Egan of Atlanta was guest speaker.

The Obstetrics-Gynecology Section met on Tuesday, April 23, beginning at 1:30 P.M. in the Apollo Room of the Arlington. Speakers were Rex Ramsey, Douglas E. Smith, B. E. Smith, A. Tharp Gillespie, William J. Sweeney, and James Romine.

The Orthopedic Section met for a luncheon, business session and scientific program in the Mars Room of the Arlington on Tuesday, April 23, beginning at 12:00 noon. The guest speaker was Dr. J. Raymond Stacy of Oklahoma City.

The Arkansas Component of the American Society of Internal Medicine met on Tuesday, April 23, in the Jupiter Room of the Arlington. A luncheon and business meeting were followed by a Medical Socio-Economic Symposium with T. J. Smith presiding. The panel consisted of Joe Painter, Mr. Max Milam, Roger Bost, Mr. Allen Weintraub, George K. Mitchell, Jerome S. Levy.

The Arkansas Academy of General Practice met at 2:00 P.M. on Tuesday, April 23, in Room "C" of the Conference Center. Charles McSherry of New York City was guest speaker.

The Urology Section met for a luncheon and business meeting at 12:15 P.M. on Tuesday, April 23, in the Montagu Room of the Arlington. Albert Rubin of New York City presented a scientific paper, which was followed by a pyelogram conference.

The Arkansas Radiological Society met on Tuesday, April 23, in the Juno Room of the Arlington Hotel for a luncheon and business meeting, followed by a scientific session. Robert L. Egan of Atlanta was guest speaker.

The Anesthesia Section met at 4:00 P.M. on Tuesday, April 23, in the Juno Room of the Arlington for a scientific program. B. E. Smith of Miami was guest speaker.

The EENT Section met all day on Tuesday, April 23, in the Mercury Room of the Arlington. Guest speakers were John R. Lynn of Dallas, Philip H. Zweifach of New York City; A. J. Brizzolara of Little Rock, and Charles S. Lane, Jr., of Fort Smith.

The Arkansas Academy of Pediatrics met at 1:30 P.M. on Tuesday, April 23, in the Venus Room of the Arlington. Speakers included Alice Beard, Robert E. Glenn, and Florence Char. A business meeting followed the scientific program.

OTHER ACTIVITIES

Fifty Year Club

The Society hosted a breakfast for members of the Fifty Year Club at 7:30 A.M. on Tuesday, April 23, in Cafe 2 of the Arlington Hotel. The following members of the Club were present: J. H. McCurry, E. A. Purdum, E. C. Coffey, W. H. Mock, E. J. Chaffin, O. H. Clopton, F. J. Scully, W. K. Smith, T. N. Black, D. B. Stough, D. W. Goldstein, H. K. Wade, Sr., R. H. Whitehead, Sr., O. A. Smith, Mac McLendon, J. W. Morris, Stanley Gates, Morgan C. Berry, Ed McKnight, and guest Fred Berry and Joseph A. Norton.

Past Presidents Breakfast

The traditional breakfast for former presidents of the Arkansas Medical Society was held on Wednesday, April 24, in Cafe 2 of the Arlington Hotel.

Golf Tournament

The annual golf tournament was held at the Belvedere Country Club with play on Sunday, Monday or Tuesday. The winners of the tournament were announced at the banquet on Tuesday evening by Dr. D. B. Stough, III, tournament chairman. Dr. W. G. Klugh, Jr., and Dr. W. A. Ross tied for low adjusted net of 72; Dr. David Pontius had the high score of the event (99).

Wine and Cheese Tasting Party

The First Councilor District hosted a Wine and Cheese Tasting Party from 6:30 to 8:00 P.M. on Monday in the Ballroom of the Arlington. Mr. Al Wiederkehr of the Wiederkehr Winery, Altus, Arkansas, was master of ceremonies for the wine tasting. Mr. Wiederkehr showed slides and discussed the history of the Wiederkehr Winery. Members of the Society,

The new president of the Society, Dr. H. W. Thomas, poses with his family at the Inaugural Banquet on Tuesday, April 23. From left (clockwise) are: son Ronnie, son Dow, sister Lois Grambles, mother Mrs. Thomas, Dr. Thomas; Mrs. John Trieschmann, Mrs. Rubye Grisham, daughter-in-law Carolyn, and son Al.

Auxiliary, and guests enjoyed sampling the wines and cheeses.

Cocktail Party

A cocktail party preceded the Inaugural Banquet on Tuesday evening. Because of the cool weather, the party was held in Room "C" of the Hotel Conference Center.

PRESIDENT'S INAUGURAL BANQUET

The President's Inaugural Banquet was held on Tuesday evening, April 23, in the Ballroom of the Arlington Hotel with the Society president, Joseph A. Norton, presiding.

Invocation was by Art B. Martin of Fort Smith.

President Norton introduced those seated at the head tables as follows: Elvin Shuffield, Secretary of the Society; Mrs. Shuffield; Thomas E. Townsend, Chairman of the Council of the Society; Mrs. Townsend; Mrs. Norton; H. W. Thomas, President-elect of the Society; Mrs. Thomas; Art B. Martin, and Mrs. Martin, immediate past president of the Woman's Auxiliary to the Arkansas Medical Society; Robert Watson, president of the Medical Education Foundation for Arkansas; Mrs. Watson; Winston K. Shorey, Dean of the University of Arkansas School of Medicine; Mrs. Shorey; Harry Hayes, Chairman of the Convention Committee; Mrs. Hayes; Mrs. C. D. Burroughs, president of the Woman's Auxiliary to the Arkansas Medical Society; Dr. Burroughs; Mrs. Carl Parkerson, President-elect of the Woman's Auxiliary to the Arkansas Medical Society; Dr. Parkerson; Mrs. C. C. Long, president-elect of the Woman's Auxiliary to the American Medical Association, Dr. Long.

Dr. Norton also introduced the following special guests: Sam Koenig, representative of the Arkansas Chapter of the Student American Medical Association; Deany Reid, representative of the Arkansas State Medical Assistants Society; and guest speakers from Cornell—William Sweeney,

Philip Zweifach, and Charles McSherry.

President Norton called on the chairman of the Scientific Exhibits, Harry Hayes, to present an award. Dr. Hayes announced that the scientific exhibit on "Renal Vascular Anatomy" by Dr. Jack Mobley had been chosen the outstanding scientific exhibit. Dr. Mobley was presented with a certificate and cash award from Mead Johnson Laboratories, sponsor of the Aesculapis Award.

President Norton called on the chairman of the Golf Tournament, D. B. Stough, III, to present the top prizes. Dr. Stough announced that the first place winners were Walter G. Klugh and W. A. Ross, who tied for low adjusted net of 72; David Pontius had the high score of the event (99).

President Norton asked Dr. and Mrs. C. C. Long to come to the rostrum. Dr. Norton paid tribute to Mrs. Long for her work with the Auxiliary and her many civic projects and congratulated her on her election to the position of president-elect of the Woman's Auxiliary to the American Medical Association. On behalf of the Society, he presented Mrs. Long with a gift of pearls and a plaque reading as follows: "In appreciation of Mrs. C. C. Long, President, Woman's Auxiliary to the American Medical Association, 1968-69, with admiration and affection from the members of the Arkansas Medical Society".

President Norton presented a check in the amount of $5,677.20 to Dean Shorey of the University of Arkansas Medical Center. The check represented contributions made by physicians and their wives to the American Medical Association Education and Research Foundation, which are divided among the Nation's medical schools to augment their budgets.

On behalf of the Medical Education Foundation for Arkansas, Robert Watson presented a check for $6,500 to Dean Shorey for the loan fund of the University of Arkansas School of Medicine.

President Norton expressed appreciation to the Auxiliary convention Chairman, Mrs. Louis K.

Mrs. C. C. Long of Ozark, president-elect of the Woman's Auxiliary to the American Medical Association, holds a plaque which President Norton presented to her on behalf of the Arkansas Medical Society. Dr. Long is at left.

Hundley, who had been in charge of decorations for the banquet, and complimented her on the lovely decorations. Dr. Norton also introduced and expressed appreciation to the Executive Vice President, Mr. Schaefer, and to Miss Richmond and the other employees of the headquarters staff. Dr. Norton expressed appreciation to the Medical Assistants Society for the coffee bar; he also thanked the scientific and commercial exhibitors who helped make the convention a success.

Mr. A. M. Edwards, Field Representative of the American Medical Association, and Mrs. Edwards, were introduced by President Norton.

Robert Watson announced that he had just received a $500 contribution to the Medical Education Foundation for Arkansas from W. H. Mock of Prairie Grove, a past president of the Arkansas Medical Society. Dr. Mock had made the contribution in memory of Miss Florence Lawson (Administrative Assistant to the Dean of the Medical School who had died on April 19, 1968) and other friends.

President Norton introduced the following past presidents of the Society who were in attendance at the banquet: W. H. Mock, H. King Wade, Sr., Euclid M. Smith, James M. Kolb, Sr., William A. Snodgrass, Jr., Joe Verser, C. R. Ellis, C. Lewis Hyatt, L. A. Whittaker.

Dr. Norton administered the oath of office of president of the Society to H. W. Thomas and turned the gavel over to him. Dr. Thomas was given a standing ovation.

Dr. Thomas presented a plaque of appreciation from the Society to Dr. Norton in recognition of his services as president during the past year. The audience gave Dr. Norton a standing ovation.

In accepting the office of president, Dr. Thomas made the following remarks:

ADDRESS OF THE PRESIDENT

"Fellow doctors, ladies, and guests: you, the physicians of Arkansas, have accorded me a great honor. And I'm grateful—so grateful, in fact, that I feel impelled to make a long, long speech. But first I want to introduce to you my own personal cheering section which I brought along —my family: my wife, Virginia, whom you all know; my mother, Mrs. Thomas, who has known me longer than most of you; my sister, Mrs. Lois Grumbles; my son Al and his wife Carolyn, and my boys Ronnie and Dow.

Now then, the agenda for tonight's banquet says that I'm to make a speech of acceptance then dismiss you. So I enlisted the aid of a speech writer for this item—one Paul Schaefer, our Executive Vice President. I think that he must be an efficiency expert or possibly have other plans for tonight and he's obviously in a hurry to get out of here. His suggested speech was: "I accept; you're dismissed". But you're not going to get off quite that easy. I fired that fellow and got me another speech writer.

Seriously now, I want to briefly review some 25 years of my involvement with the Arkansas Medical Society. It was a desire to know "what was going on"—"who was doing what" where my medical colleagues were during World War II, that led me to join the Lincoln County Medical Society while I was in the South Pacific in World War II. I think I'm probably the only member to ever join the Arkansas Medical Society while in the South Pacific. I did this in order to get on the mailing list of Bill Brooksher's newsletter for Society members in military service.

Shortly after returning to Arkansas after seven years absence—at the end of World War II—the late Dr. H. T. Smith of McGehee "shoved" me into involvement in the Arkansas Medical Society via the old EMC (Emergency Medical Care) committee which was organized to conduct our campaign against the socialization of the medical profession. This committee was chaired by Dr. Charles Henry, then after his election as president of the Arkansas Medical Society, Dr. George Steinkamp served as chairman until he left Arkansas to make a name for himself in space medicine. Thereafter I served as chairman of this committee which directed our efforts against "socialized medicine" and "Reorganization Plan No. 1" back in the old days of "Whittaker and Baxter". Then in 1951—17 years ago—I began my service on the Council of the Arkansas Medical Society, representing Southeast Arkansas.

The last 22 presidents of the Arkansas Medical Society have been friends of mine. I've worked with them. They've all gone into office with a sense of responsibility and humility. And almost all of them have left office a year later with a feeling of frustration! They've all started out feeling that maybe—just maybe—somehow—they could lead the doctors of Arkansas into:

1. A more active participation in community affairs;

2. A more active participation in Medical Society activities;

3. Using their very great influence on their lay constituents (patients, friends, associates) for the betterment of society.

Having been closely associated with these—my dedicated predecessors—and having worked in various endeavors of the Arkansas Medical Society for over 20 years, I have no such illusions. I know I'm not going to remold the medical profession in Arkansas—or "fire the shot that will be heard around the world".

I have, however, set what I believe is an attainable goal for my activities in the coming year. It will be my aim to make physicians conscious of the worth of their professional organization. I shall attempt to arouse the interest of doctors in their local societies. It will be my purpose to convince doctors that the Arkansas Medical Society is a good organization—to convince them that it's worthy of their wholehearted support—that it's worth giving up that golf game for—foregoing that fishing trip—yes, that it's even worth sacrificing that Turkey Hunt for! These are things which I believe we—as doctors—must do if we're to have the influence on the public and in governmental affairs that we should have.

Success in my efforts in achieving this goal will, I know, be limited. But I'm going to try! I ask your help. You're my friends, and I'm grateful to you for being here tonight."

Dr. Thomas then introduced Dr. Hermie Plunk, a physician from Jonesboro, who entertained the group with folk singing. Dr. Plunk

The new president-elect of the Arkansas Medical Society, Dr. Ross Fowler of Harrison.

was accompanied by Kenny Shaw and the Redcoats who played for dancing following the banquet.

MEMORIAL SERVICE

A joint Memorial Service of the Arkansas Medical Society and the Women's Auxiliary to the Society was held on Tuesday morning, April 23, in the Ballroom of the Arlington Hotel. The president of the Society, Joseph A. Norton, presided.

Invocation was by The Reverend William Howard Kryder of the First Presbyterian Church of Hot Springs.

Dr. Norton read the following names of deceased members of the Society:

H. M. Baird, Forrest City
Cecil F. Boulden, Jr., Fort Smith
W. B. Center, State Sanatorium
Edward W. Crow, Benton
Benjamin W. Drompp, Little Rock
Masauki Hara, Little Rock
Clyde A. Lawlah, Pine Bluff
Horace R. Murphy, Little Rock
J. O. Scott, Hot Springs
J. S. Spillyards, Pine Bluff
James M. Walls, Blytheville
D. E. White, El Dorado
Charles S. Wilson, Nashville

Mrs. Art B. Martin, president of the Auxiliary, read the following names of deceased members of the Auxiliary:

Mrs. Byron Grimmett, Waldo
Mrs. Charles W. Dixon, Gould
Mrs. Nye Compton, Little Rock
Mrs. S. A. Drennan, Stuttgart
Mrs. C. C. Reed, Sr., Little Rock
Mrs. James S. Taylor, Little Rock
Mrs. Pat Murphy, Little Rock
Mrs. F. O. Mahoney, Sr., El Dorado

The Memorial Address was made by Evans Z.

Dr. Hermie Plunk, a Jonesboro physician who is also a recording artist, entertains at the Inaugural Banquet, Tuesday, April 23, 1968.

The new president of the Society, Dr. H. W. Thomas, makes his acceptance speech. Inaugural Banquet, Tuesday, April 23, 1968.

Hornberger of Fort Smith.

MEMORIAL ADDRESS

Evans Z. Hornberger

The wealth of a community, a state, a nation, or the world is not measured so much by the accumulation of money, property, and the like, but rather by the qualities and accomplishments of individuals. We come today to pay tribute and honor to another group of individuals who have completed their tasks in this world, and have gone to the better life promised to all of us by God and Jesus Christ. Surely all of these friends and associates have been a large part of the wealth of our communities and our state, and their departure from our midst has constituted a great loss to all of us.

Man is a combination of physical, mental, and spiritual being, created by God, to accomplish his purpose. Each individual's purpose in this life is different, and the attainment of these goals necessary to accomplish God's purpose varies. Surely the calling to attend to the ills of our fellow man is one of God's great purposes in this life. The wife who stands with her physician husband contributes greatly to this purpose.

Death today is often sudden, forceful, and seemingly purposeless—hard to understand by the

human mind. Christ's death was purposeful—through his death purpose was given for our lives and death. We can and do understand the purpose of Christ's death, and through this understanding, can we accept the pain of death for ourselves and others—and realize that all is not finished? These friends and associates whom we remember and honor today have gone to eternal life—not as a reward, but as their rightful place—made possible through the death of Jesus Christ and the grace of God.

We do not remember the trials and tribulations and unpleasantness associated with these lives, but rather the dedication, sacrifices, accomplishments, and pleasures of association. God's promise of forgiveness and life everlasting gives us comfort and hope.

It was Oscar Wilde who said—"If a friend of mine gave a feast and did not invite me to it, I should not mind a bit. But, if a friend of mine had a sorrow and refused to allow me to share it, I should feel it most bitterly. He who can look on the loveliness of the world and share its sorrow, and realize something of the wonder of both is in immediate contact with divine things, and has got as near to God's secret as anyone can get."

These to whom we pay homage have devoted a lifetime to sharing sorrows and working to bring more loveliness into the world. Let us hope that each of us can do as well, and let our association with these dedicated friends give us inspiration for the future.

Benediction was by Reverend Kryder.

FINAL MEETING
HOUSE OF DELEGATES
Wednesday, April 24, 1968

Speaker J. P. Price called the final meeting of the House of Delegates of the 1968 convention to order at 10:00 A.M. on Wednesday, April 24, 1968, in Room "C" of the Arlington Hotel. He called on Lee Parker for the invocation.

Secretary Shuffield called the roll of delegates.

Dr. Harry Hayes, Jr., chairman of the Scientific Exhibits, announces that the Mead Johnson Aesculapius Award was won by Dr. Jack Mobley of Little Rock.

The following delegates, officers, and members seated as delegates by action of the House were present:

Arkansas, R. H. Whitehead, Sr.; Ashley, Charles E. Hicks; Baxter, John F. Guenthner; Boone, H. V. Kirby; Bradley, W. C. Whaley; Clark, George D. Peeples; Cleburne, William M. Wells; Columbia, H. Scott McMahen; Craighead-Poinsett, John Kirkley, Joe Verser, M. E. Blanton; Crawford, Millard C. Edds; Dallas, John H. Delamore; Drew, Paul A. Wallick; Franklin, David L. Gibbons; Garland, William R. Mashburn; Cecil W. Parkerson, John W. Trieschmann; Greene-Clay, Asa Crow; Hempstead, C. Lynn Harris; Independence, Jim E. Lytle; Jefferson, Carl Nash; Johnson, Guy P. Shrigley; Lawrence, Ralph Joseph; Lee, E. C. Fields; Logan, W. Daune Jones; Mississippi, T. E. Utley; Nevada, H. Blake Crow; Pope-Yell, Roy I. Millard, Charles F. Wilkins; Pulaski, F. R. Buchanan, James L. Smith, James Flack, Frank Morgan, Gilbert Dean, Edgar J. Easley, George K. Mitchell, William S. Orr, Bill Floyd, Thomas Jansen, Frank Padberg, James Weber, Guy R. Farris, Winston K. Shorey; Sebastian, A. C. Bradford, R. C. Goodman, L. A. Whittaker, Carl Williams; Washington, J. Warren Murry, Lee B. Parker, H. C. Palmer, Jr., EENT Section, James Pappas; Councilors Eldon Fairley, Paul Gray, T. E. Townsend, Kenneth R. Duzan, Karlton Kemp, Jack Kennedy, W. Payton Kolb, C. C. Long, Bascom P. Raney, Hugh R. Edwards, L. J. Pat Bell, Paul Sizemore, John P. Wood, Robert F. McCrary, James R. Morrison, Ross Fowler, A. S. Koenig; President H. W. Thomas; First Vice President, Jerome S. Levy; Speaker J. P. Price; Vice Speaker Amail Chudy; Secretary Elvin Shuffield; Treasurer Ben N. Saltzman; Past Presidents Joe Verser, W. A. Snodgrass, Jr., W. H. Mock, L. A. Whittaker, James M. Kolb, W. R. Brooksher, C. Lewis Hyatt, Joseph A. Norton.

The chairman of the Credentials Committee, James M. Kolb, reported that a quorum was present.

The chairman of the Nominating Committee, Guy P. Shrigley, presented the report of the Nominating Committee.

For President-Elect—

Ross Fowler, Harrison

William A. Snodgrass, Jr., Little Rock

First Vice President—

Harry Hayes, Jr., Little Rock

The chairman of the Golf Tournament, Dr. D. B. Stough, III, holds a Remington Electric Shaver won by Dr. David H. Pontius.

Second Vice President—

C. F. Wilkins, Jr., Russellville

Third Vice President—

Guy U. Robinson, Dumas

Treasurer—

Ben N. Saltzman, Mountain Home

Secretary—

Elvin Shuffield, Little Rock

Speaker of the House of Delegates—

John P. Price, Monticello

Vice Speaker of the House of Delegates—

Amail Chudy, North Little Rock

Councilors—

First District: Bascom P. Raney, Jonesboro
Second District: Hugh R. Edwards, Searcy
Third District: L. J. Pat Bell, Helena
Fourth District: Wayne Lazenby, Dumas
Fifth District: L. E. Drewery, Camden
Sixth District: John Wood, Mena
Seventh District: Robert McCrary, Hot Springs
Eighth District: James R. Morrison, Little Rock
Ninth District: Ross Fowler, Harrison
Tenth District: A. S. Koenig, Fort Smith

Delegate to AMA—

C. C. Long

Alternate Delegate to AMA—

Joe Verser

Upon the motion of Shrigley and Fairley, the House accepted the report as presented. Speaker Price then called for nominations from the floor. There were no nominations from the floor for the position of president-elect.

Elvin Shuffield moved that nominations cease for the position of first vice president and that Dr. Hayes be elected by acclamation. There being no objection, it was so ordered by the Speaker.

T. E. Townsend moved that nominations cease for the position of second vice president and that Dr. Wilkins be elected by acclamation, second by Roy Millard and so ordered by Speaker.

James L. Smith moved that nominations cease for the position of third vice president and that Dr. Robinson be elected by acclamation, second by Jerome Levy. There being no objection, it was so ordered by the Speaker.

A. S. Koenig moved that nominations cease for the position of treasurer and that Dr. Saltzman be elected by acclamation, second by T. E. Townsend. There being no objection, it was so ordered by the Speaker.

Upon motion of Robert McCrary and Ross Fowler, nominations were closed for the position of secretary and Elvin Shuffield was elected by acclamation.

Upon the motion of Joe Verser and T. E. Townsend, nominations were closed for the position of Speaker of the House and J. P. Price was elected by acclamation.

Upon the motion of Roy Millard and William S. Orr, nominations were closed for the position of vice speaker of the House and Amail Chudy was elected by acclamation.

Speaker Price called for nominations from the floor for the position of councilor from the ten districts. Bradley County Delegate W. C. Whaley nominated George F. Wynne of Warren for the fifth councilor district position vacancy. Upon motion of W. R. Mashburn and Jerome Levy, the House voted to close nominations for councilors and to accept the slate proposed by the nominating committee with the exception of the fifth district position. Drs. Raney, Edwards, Bell, Lazenby, Wood, McCrary, Morrison, Kirby and Koenig were declared elected by acclamation.

Speaker Price announced that members would vote by ballot for the positions of president-elect and councilor for the fifth district. W. A. Snodgrass, Jr., requested that his name be withdrawn as a nominee for the position of president-elect and that Ross Fowler be elected by acclamation. Upon the motion of T. E. Townsend and Ben N. Saltzman, Dr. Fowler was unanimously elected president-elect.

Speaker Price requested that Joseph Norton, Roy Millard and William S. Orr serve as tellers to tally votes for the fifth councilor district position. Speaker Price reported the result of balloting and declared George F. Wynne elected to the position of fifth district councilor.

The Speaker then called for nominations from the floor for the positions of delegate to AMA and alternate delegate. Upon motion of Ben Saltzman and W. R. Mashburn, nominations were closed for the position of AMA delegate and C. C. Long was elected by acclamation.

Upon the motion of Ross Fowler, nominations were closed for the position of alternate delegate to AMA and Joe Verser was unanimously elected to the position.

Speaker Price requested that past presidents L. A. Whittaker and C. Lewis Hyatt escort the new president-elect, Ross Fowler, to the platform. Dr. Fowler thanked the members of the House for the honor bestowed upon him by electing him to the position. Dr. Fowler stated that he would serve the Society to the best of his ability.

The speaker then called for the reports of the Reference Committees. The report of Reference Committe No. 1 was presented by the chairman of the committee, Dr. Hyatt.

REPORT OF THE REFERENCE COMMITTEE NUMBER ONE

C. Lewis Hyatt, *Chairman*

Mr. Speaker and members of the House of Delegates:

Members of this committee, Dr. John McCullough Smith, Dr. H. King Wade, Jr., and Dr. C. Lewis Hyatt, met at the assigned time and place Sunday afternoon. We had a goodly number of participants and some very spirited discussion. I might observe that committee activity is improving through the past years, and the reference committees are being used much more for discussion.

Our actions are as follows:

1. Committee on Hospitals, Dr. Art Martin, Chairman. The committee accepted this report as published without recommendation.

2. Committee on Public Relations, Dr. A. C. Bradford, Chairman. The report of this committee stimulated some spirited discussion. We strongly recommend: (a) that the recommendation to have an assistant to Mr. Paul Schaefer, whose principal function would be public relations, be implemented; (b) that public relations

chairman be invited and requested to attend all Council meetings; (c) that new member orientation be continued with the suggestion that it would possibly be more effective on a county level than on a state level; (d) that councilors for each district be designated as news media liaison officers and not only tell the councilor but also inform the local news media; (e) as to the paragraph concerning permitting voting delegates to the House by each specialty section, we recommend against this at this time and recommend further study of whatever means may be used to involve these groups in communications and public relations of the entire Arkansas Medical Society.

3. Immunizations Sub-Committee, Dr. Wilbur Lawson, Chairman. The committee recommended accepting this report without recommendation and with commendation for the excellent work accomplished by them.

4. Arkansas State Advisory Committee to Selective Service System, Dr. Gerald Teasley, Chairman. The committee accepted this report as published without recommendation.

5. Sub-Committee on Liaison with Blue Cross-Blue Shield, Dr. James Morrison, Chairman. The committee accepted this report as published; that in view of the liaison of the six physicians on the Board and the functioning 21-Man Committee that this Sub-Committee should be abolished.

6. Budget Committee, Dr. W. R. Brooksher, Chairman. The committee accepted this report as published without recommendation.

7. Report of Council and the supplementary report of the Council, Dr. T. E. Townsend, Chairman. The committee recommended that this report be accepted with no recommendation but the suggestion that Item XIV concerning appointments to Blue Cross-Blue Shield Board be deferred pending a study of Dr. Morrison's committee, as of Paragraph XV, of the advisability of applying this to all appointive offices; or the House should now take any action they desire.

8. The president's address given by Dr. Joe Norton was accepted as information only without recommendation inasmuch as it was presented to the House of Delegates as a whole.

9. Report of Blue Cross-Blue Shield given by Mr. Joe Elliott was accepted without recommendation inasmuch as several committees are involved and much activity is in progress regarding the proposed plans.

Past presidents Dr. L. A. Whittaker and Dr. C. Lewis Hyatt escort the newly elected president-elect, Dr. Ross Fowler, to the rostrum. House of Delegates meeting, Wednesday, April 24, 1968.

Upon motion of Hyatt and James Kolb, the House approved the report of Reference Committee Number One as presented.

The Chairman of Reference Committee No. 2, Jack W. Kennedy, presented the following report:

REPORT OF REFERENCE COMMITTEE NUMBER TWO

Jack W. Kennedy, *Chairman*

Mr. Speaker and members of the House of Delegates. Your reference committee wishes to make the following report on the items referred to it.

1. Sub-Committee on Liaison with the State Board of Health. This report was received by your committee as published in the Arkansas Medical Journal. There were no items of controversy. Mr. Speaker, I move that this report be adopted. There being no objection, it was so ordered by the Speaker.

2. Sub-Committee on State Health and Medical Resources for Civil Defense. Your reference committee wishes to point out the importance of this report. After hearing discussions of the program regarding implementation and management of the self-help training course, we were impressed by the scope and magnitude of this work. A note was made of the materials, such as packaged Disaster Hospital Units and Hospital Reserve Disaster Inventory units. This

committee would like to encourage the investigation of this plan through the State Health Department by your local county societies in every county in the State. Mr. Speaker, I move this report be adopted. There being no objection, it was so ordered by the Speaker.

3. Committee on Insurance. Your reference committee wishes to commend this good report. Several members present asked questions regarding various rates about the insurance companies involved. A discussion reveals generally favorable response to present going rates. It is believed by your reference committee that with increased policyholders in a given company, this company can produce a greater earned capital; thus, a reduction in annual premiums. It was noted a greater spread cost between low risk and high risk members had been instigated by one or two of the insurance carriers. Mr. Speaker, I move this report be adopted. There being no objection, it was so ordered by the Speaker.

4. 21-Man Committee. Your reference committee studied the report at length and concurs with the statements made by the chairman and recognizes the tremendous amount of scope of work to be dealt with. Mr. Speaker, I recommend that this report be adopted. There being no objection, it was so ordered.

5. Committee on Arrangements for Annual Session. This committee wishes to express its appreciation for the excellent work done by Dr. Hayes and his committee. We especially note the fine quality of scientific programs that have been produced at this annual session. This committee again wishes to thank the chairman and his committee for the Arkansas Medical Society for their fine work. Mr. Speaker, I recommend that this report be adopted. There being no objection, it was so ordered by the Speaker.

6. Report of the State Medical Board. Your committee and its deliberations on this item took note of the licenses given by examination and that there was a number of 88 for the year 1967. Physicians certified to other states were 101. This committee would like to reiterate some of the problems that lie ahead and that we are not keeping a good percent of our medical graduates at home. Mr. Speaker, I recommend that this report be adopted. There being no objection, it was so ordered by the Speaker.

7. Advisory Committee to the Woman's Auxiliary. Your reference committee recognizes the wishes of the Woman's Auxiliary and the actions taken by this organization in this particular resolution. This resolution was presented to the Council. The Council approved the resolution in this matter—that the Auxiliary dues be collected with the annual dues of the members of the Medical Society at the county level on a voluntary basis. Mr. Speaker, we recommend that this change be inserted here as the actions of the Council and I move that this report be adopted as approved by the Council. There being no objection, it was so ordered.

8. Report of the Executive Vice President. Your reference committee read this report in its entirety and urges all members to read this excellent paper which concerns the vital problems we as an organization are faced with. Mr. Speaker, we would like to commend our Executive Vice President on this excellent report and move that this report be adopted. There being no objection, it was so ordered.

9. Resolution from the Traffic Safety Committee. Your reference committee highly endorses this resolution. The intent, of course, is that traffic safety authorities may invoke this consent law and that every driver when securing a license would consent to a test for alcohol. Mr. Speaker, I move the adoption of this resolution. There being no objection, it was so ordered.

10. Resolution from Pulaski County for Constitutional Amendment. Your reference committee heard discussions from the floor. Pro and con discussions were on the age limit to be placed on life membership. Note was also made of loss of income for the Society at the giving of life membership at the age of 70. By 1970, it was noted that there would be 43 doctors and dues loss of $3,225. A ten-year estimate is available, but the length of this report would not be advisable at this time here in this reference committee report.

After considerable deliberation, your committee felt that a compromise at the age of 70 would be acceptable. It is recognized that the doctor at 70 will lose a large percent of his productiveness, but he is still physically fit to enjoy the fruits of his labors and to enjoy the honor given him by his Society.

The Pulaski County resolution proposed that the By-Laws of the Arkansas Medical Society be amended as follows:

Chapter I, Section 4, paragraph 1-a; delete paragraph 1-a and substitute:

"An active member who shall have attained

Dr. and Mrs. Elvin Shuffield, Dr. and Mrs. William A. Snodgrass, Jr., Mrs. A. M. Edwards, and Mrs. Ross Fowler at the Wine and Cheese Tasting Party on Monday evening.

his seventieth year, and upon recommendation of his county medical society, shall be granted the status of life member. Such a member shall enjoy the full membership privileges and shall be exempt from the payment of further dues and assessments."

Your reference committee offers changes in the wording of the resolution to amend as follows:

Add after "year" in second line: "and has been an active member of the Arkansas Medical Society for a minimum of ten years."

A motion was made by James M. Kolb that the membership requirement be changed to 20 years. After considerable discussion, Tom Jansen called for question on the motion. The motion was defeated. Upon motion of Jack Kennedy and John Kirkley, the House approved the reference committee recommendation.

11. Dean Shorey's Report on Medical School. Your reference committee concurs wholeheartedly in the work and effort that the School of Medicine is doing and expresses the appreciation of the Arkansas Medical Society to Dean Shorey and his staff for this fine undertaking in elevating recruitment and faculty and streamlining the requirements in the basic sciences for admissions. This committee recognizes the difficulties in selecting proper candidates for the study of medicine but recommends strong approach in admitting Arkansas applicants. Mr. Speaker, I recommend the adoption of this report and move that it be received for information. There being no objection, it was so ordered.

I wish to thank the staff of the Arkansas Medical Society for their assistance in preparing this report. I also wish to thank the members of this committee for their participation in the open hearing. The committee was composed of Dr. Gordon Oates of Little Rock and Dr. C. C. Long of Ozark. Upon the motion of Jack Kennedy and James M. Kolb, the report of Reference Committee No. 2 was adopted by the House.

The chairman of Reference Committee No. 3, Karlton Kemp, presented the following report.

REPORT OF REFERENCE COMMITTEE NUMBER THREE

Karlton Kemp, *Chairman*

Mr. Speaker and members of the House of Delegates: Your Reference Committee gave careful consideration to the items referred to it and makes the following report.

1. Report of the Committee on Public Health. The report indicates only to a slight extent the extensive work of this committee. The committee recognizes the excellent work and organiza-

tion of Dr. Ben Saltzman. We recommend the adoption of this report. Mr. Speaker, I move this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

2. Report of the Committee on Rural Health. The Committee on Rural Health has been very active working with many other organizations. The Ninth Arkansas Rural Health Conference was held November 8th and 9th in Little Rock. The Reference Committee was very much impressed by the extensive work done by this committee. Mr. Speaker, I move that this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

3. Reports of the Committee on Medical Education, Committee on Postgraduate Education and the Committee on Long Range Planning made into a combined report. This Reference Committee recognizes the importance of his planning and its able leadership by Dr. Winston K. Shorey, Dr. Calvin Dillaha, Dr. George Mitchell, and Dr. Thomas Wortham. Mr. Speaker, I move that this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

4. Committee on Liaison with the Nursing Profession. The Reference Committee noted after much discussion from those attending this meeting that the nurses desire more responsibility and that this being recognized, that physicians spend more time and interest in aiding in their training program for such items as intensive care and allied special fields for improvement of medical care. Your Reference Committee heard testimony from the chairman of this committee, Dr. Frank Padberg, and notes with interest the tremendous amount of work he and his committee have done. He recommends Statewide meetings between the nursing, hospital administration, and medical profession, aid and support to all nursing programs, and particular attention to the licensed practical nurses.

5. Report of the Sub-Committee on Tuberculosis. The Reference Committee heard extensive discussion of this subject by Dr. John Schultz, Dr. Jerome Levy, Dr. Paul Reagan, Dr. W. Duane Jones, Dr. John Kirkley, Dr. S. C. Monroe, Dr. Kenneth Duzan, and others.

The Reference Committee notes with great interest the fine report from the Sub-Committee on Tuberculosis headed by Dr. John C. Schultz and resulting from a meeting where members present were Dr. Clyde Tracy, Dr. Paul Reagan, Dr. Joseph Shelton, Dr. Joe Scruggs, and ex-officio Dr. Duane Jones. Present in advisory capacity were Dr. Jacob Ellis and Dr. James Cornett.

The Tuberculosis Committee considered at that meeting the experiment in private hospital care of tuberculosis patients as carried out in the Jefferson Memorial Hospital at Pine Bluff.

The results of that meeting were that the Sub-Committee on Tuberculosis voted approving the six-months project and called it a success. Secondly, the Sub-Committee recommended the expansion of private hospital treatment of tuberculosis to other areas of the State on a trial basis and thirdly, that the Booneville Sanatorium should restrict its care to the management of cases and suspect cases of tuberculosis until a study should demonstrate the demand for non-tuberculosis chest care. In this regard, they recommended that the House of Delegates should request a letter to all physicians in Arkansas for a "yes" or "no" vote concerning the specific question of whether or not the Arkansas Tuberculosis Sanatorium should expand its services to include treatable chronic chest disease in medically indigent patients who have been referred to the Sanatorium by their physicians when there are beds available and not in use for the treatment of tuberculosis. They further asked that a block be provided on this ballot so that the voting physician could state whether he lived in a city of 3,000 or less, 3,000-10,000 or greater than 10,000. The committee followed up by stating that they did not feel that the Sanatorium should be closed. Mr. Speaker, this Reference Committee recommends the adoption of this report and the implementation of its proposals.

There was considerable discussion by members of the House concerning the treatment of tuberculosis patients in private hospitals. H. W. Thomas moved that this portion of the Reference Committee report be adopted with the exception of approval of the expansion of private hospital treatment of tuberculosis to other areas of the State on a trial basis. Dr. Thomas' motion was seconded by W. R. Mashburn.

John Delamore, delegate from Dallas County, moved that Dr. Thomas' motion be amended to disapprove this portion of the Reference Committee's report and refer the matter back to the Tuberculosis Committee for further study and

report back to the House at the next assembly. Second by James M. Kolb. After discussion of this motion, Dr. Thomas reiterated his support of the Sub-Committee and appreciation for the work done by them. He stated that he felt it would be a mistake to refer the entire matter back to the Sub-Committee and requested a vote on his motion. Drs. Delamore and Kolb agreed to withdraw the substitute motion. The Speaker called for a voice vote on the motion by Dr. Thomas and declared the motion carried.

Upon the motion of Kemp and Kolb, the House voted to accept this portion of the Reference Committee report as amended by Dr. Thomas' motion.

6. Report of the Sub-Committee on Liaison with Vocational Rehabilitation. This committee notes with interest the extensive work done by the Rehabilitation Committee and its chairman, Dr. Paul G. Henley. Mr. Speaker, I move that this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

7. Report of the Committee on Medicine and Religion. The Reference Committee notes the extensive work of this committee and its chairman, Dr. Jerome Levy. Mr. Speaker, I move this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

8. Report of the Committee on Mental Health. This Reference Committee notes the service afforded the State of Arkansas by the work done this year, aided by its chairman, Dr. W. O. Young. Mr. Speaker, I move this report be received for the information of the House of Delegates. There being no objection, it was so ordered.

9. Report of the Traffic Safety Committee. This Reference Committee notes the service afforded the State of Arkansas by the work done this year. The committee, through its chairman, Dr. Louise Henry, recommends:

1. That the Arkansas Medical Society endorse the Implied Consent Law. This was endorsed by the American Medical Association at the June 1967 meeting.
2. Re-emphasize the need for special training of ambulance personnel in the care of the injured.
3. Periodic re-examination of drivers for license.

A bill proposes an Implied Consent Law will be introduced in the Arkansas Legislature by Dr. Morriss Henry, a representative from Washington County.

Mr. Speaker, I move the adoption of this report. It was so ordered by the Speaker.

10. Report of the Arkansas Political Action Committee. The House of Delegates heard the report Sunday from Dr. Henry Crane.

Mr. Speaker, I move that this report be received for the information of the House of Delegates.

11. Resolution from the Pulaski County Medical Society. This resolution notes a shortage of nurses throughout the State and urges physicians to repond when asked to assist in their education. It is urged that hospitals involved in nursing education include physicians on their governing board and that agencies involved with accreditation of programs in nursing education be urged to utilize the assistance of physicians in establishing standards for nursing education. They asked that this resolution be sent to appropriate institutions and agencies and to the AMA.

Considerable lively discussion was brought before your Reference Committee. It was felt extremely advisable that physicians be named to accrediting Boards particularly on those responsible for setting up standards and teaching programs for schools of nursing. It was felt that in no other way could the nurse of 1978 fulfill her duties for the best interest of the patient.

Mr. Speaker, I move the adoption of this report and that appropriate action be taken. There being no objection, it was so ordered by the Speaker.

12. Resolution from the Arkansas Tuberculosis Association Resolutions Committee including Mary B. Plotz, M.D., Chairman, Mrs. Fred Ingram, Jerome S. Levy, M.D., and Mr. Abner Junkin.

This resolution notes that they had financed a study on tuberculosis control in Arkansas by unbiased, out-of-state specialists in the field and noted that this study recommended a carefully evaluated pilot program treating tuberculosis in general hospitals and whereas the pilot program in Pine Bluff has been in progress less than one year and noting that only after adequate trial can this new concept be fully evaluated and noting "publicity within the past months has been of such nature as to promote in the minds of the

general public the yet unproven efficacy of the new concept of general hospital care for tuberculosis"; therefore, let it be resolved that the Arkansas Tuberculosis Association on April 5, 1968, urge Governor Rockefeller, members of the general assembly and the Arkansas Medical Society to retain the one specialized treatment center for tuberculosis in Arkansas, the sanatorium at Booneville, until the general hospital care of tuberculosis be fully evaluated; they asked further that a plan be considered for the utilization of vacant beds at the Arkansas Tuberculosis Sanatorium for the treatment of medically indigent patients suffering from emphysema, chronic bronchitis, and other respiratory ills and who are referred by private physicians.

Mr. Speaker, this reference committee feels that the general membership of the Arkansas Medical Society can best answer the question by ballot whether or not expanded medical care should be instituted for the care of diseases other than tuberculosis at the Booneville Tuberculosis Sanatorium. I move that this report be received for the information of the House of Delegates. There being no objection, it was so ordered by the Speaker.

Mr. Speaker, this concludes my report and I wish to thank Dr. Guy R. Farris and Dr. John P. Wood for their valued contribution.

The Chairman of the Council, Dr. T. E. Townsend, presented the following supplemental report:

SUPPLEMENTAL REPORT OF THE COUNCIL

T. E. Townsend, *Chairman*

The Council met on Sunday, April 21, and transacted the following business.

1. Approved the following list of dues exemptions.

AFFILIATE MEMBERSHIPS

Residency Training:

James R. Callaway
Robert H. Manley
Jimmie J. Magic
Allie E. Andrews, Jr.
A. F. Isele
Solon McGaughey
C. S. Northum
Donald I. Purcell
W. R. Oglesby
M. Wayne Reynolds
R. K. Lovell, Sr.
William A. Woodcock

Military Service:

Michael E. Barnett
Donald D. Weaver
C. J. Little
Joseph Farmer
Banks Blackwell
Alex S. Y. Go
Joseph H. Lyford

Financial Reverses:

Charles Hesterly

Retirement:

Morgan C. Berry
Howard A. Rands
Harold M. Miller
Paul Jeffery
Thomas N. Black
Joseph H. Downs
Glen M. Holmes
A. M. Washburn
E. J. Brown
Howell Brewer
Martha M. Brown
G. W. Reagan
Charles M. Brizzolara
H. K. Carrington
R. M. Blakely
James M. Nisbett
Charles R. Walton
Cal D. Gunter
James D. Hayes
Frances C. Rothert
Joseph P. DeLaney
William L. McNamara
Eva F. Dodge
N. W. Riegler, Sr.
H. L. Boyer

Disability:

Harry E. McEntire
S. T. W. Cull
Virgil L. Payne
H. Clay Chenault
H. H. Holt
Bryce Cummins
H. C. Sims, Sr.
James L. Jackson
Daniel H. Autry
C. A. Churchill
Phillip G. ReMine

LIFE MEMBERSHIPS:

F. J. Scully
C. W. Hall
W. G. Klugh
John G. Cullins
D. B. Stough

2. Voted to recommend to the House of Delegates that the Society endorse and support an Implied Consent Law. Under this law, an applicant for a driver's license would, by signing the application, give implied consent to a test for purposes of determining if he was under the influence of alcohol while driving. The Arkansas Medical Society Traffic Safety Committee supports an implied consent law.

3. Received for information the Society attorney's opinion that it was not a requirement of State law that Blue Cross-Blue Shield contracts include a clause reducing payments to patients of physicians who had not signed a participating physician's agreement with Blue Cross-Blue Shield.

4. Appointed Dr. Wayne Lazenby, Dr. A. C. Bradford, and Dr. John Wood to a committee to draw up resolutions in connection with the annual meeting.

5. Heard a lengthy discussion on tenure of physicians on committees of the Society and State Boards having an impact on the medical profession.

6. Discussed the status and progress of planning for the implementation of Title XIX Medical Care under Social Security for Arkansas.

The Council met on Monday, April 22, and heard a report from Dr. Verser that there were

110 physicians in active practice in Arkansas who are not members of the Medical Society. This number does not include those physicians in Pulaski County who are not members of the Society for the reason that the State Board was unable to positively identify those who are not in private practice in that county. The Council voted to write the county societies and the councilors to encourage the county societies to contact the eligible non-member physicians to enroll them in the membership.

The Council voted to ask the chairman of the Council to appoint a committee on Pharmacy to include a general practitioner, a physician familiar with the operation of a hospital and an internist who is familiar with drugs.

The Council met on Tuesday and heard an Oklahoma physician, Dr. J. Ray Stacy, discuss the progress of the Oklahoma Political Action Committee. Dr. Stacy stated that 635 out of approximately 2100 Oklahoma physicians are members of the PAC organization.

The Council heard a discussion of a campaign to educate the public on the problems of increasing health care personnel.

The Council met on Wednesday and transacted the following business:

Adopted a resolution in memory of Miss Florence Lawson.

Adopted resolutions of appreciation to the Arlington Hotel, the Medical Assistants, and the news media.

Upon the motion of Townsend and James M. Kolb, the report was approved by the House.

The chairman of the resolution committe, Dr. John Wood, presented the following resolutions:

RESOLUTION
RE: MISS FLORENCE LAWSON

WHEREAS all physicians whose good fortune brought them in contact with Miss Florence E. Lawson feel a deep sense of loss at her passing and

WHEREAS during the forty-one years that she served as assistant to the several deans at the University of Arkansas School of Medicine, more than 2600 future physicians received the benefit of her devotion and dedication to their welfare and

WHEREAS Miss Lawson never forgot one of her former students, and, though years may have past, never failed to have a warm personal greeting for any alumnus returning to his alma mater and

WHEREAS she served as a continuing administrative influence at the School of Medicine under twelve deans and vice presidents, always loyal and helpful to whoever carried administrative responsibility,

BE IT THEREFORE RESOLVED, that the Arkansas Medical Society express its deep sorrow upon the death of Miss Florence E. Lawson and

BE IT FURTHER RESOLVED that a copy of this resolution be sent to her mother and brother conveying the sympathy of this Society's membership and

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the University of Arkansas School of Medicine with the request that it be hung in an appropriate place as a memorial to our departed friend.

RESOLUTION OF APPRECIATION

WHEREAS, the 92nd Annual Session of the Arkansas Medical Society, just completed in Hot Springs, has been an outstanding success, and

WHEREAS, the management of the Arlington Hotel has facilitated our efforts in every way in providing meeting rooms, projection equipment, and otherwise assisting in arrangements for our meeting, and

WHEREAS, the first Councilor District Medical Society, Dr. Hermie Plunk, and the individual members thereof, and the Auxiliary, have been gracious hosts, and have contributed greatly to our enjoyment, and

WHEREAS, the management of the Belvedere Country Club has been most generous in making its golf course available for the golf tournament, and

WHEREAS, the guest speakers have added greatly to the worth of our meeting, and we have benefited from the lessons which they have shared with us, and

WHEREAS, the hours of thought devoted by the Committee on Arrangements for the Annual Session have been greatly rewarding, and have borne fruit in a program of outstanding worth, and

WHEREAS, study and other effort was given by our scientific exhibitors and the Aesculapius Award was furnished by the Mead Johnson Laboratories, resulting in exhibits that have been instructive, and were greatly enjoyed, and

WHEREAS, the commercial exhibits were of

great benefit to our gatherings and the courteous and careful attention of the attendants was quite helpful,

NOW, THEREFORE, BE IT RESOLVED that the Arkansas Medical Society records its sincere appreciation and expresses its heartfelt thanks to our host city, and these heretofore mentioned, for the cordial welcomes, the extension of unbounded hospitality, the expression of good will and kindly feelings shown each member of the Society, who has been privileged to attend this session. We shall ever hold in pleasant memory the hours spent as their guests during the last several days.

RESOLUTION
RE: MEDICAL ASSISTANTS

WHEREAS, the Arkansas State Medical Assistants Society has been most kind and generous in serving coffee and doughnuts to the members and guests attending the 92nd Annual Session of the Arkansas Medical Society, and

WHEREAS, the coffee bar has added much to the success of the meeting, and

WHEREAS, the medical assistants have demonstrated their support and dedication to the purposes of organized medicine,

NOW, THEREFORE, BE IT RESOLVED that the House of Delegates of the Arkansas Medical Society expresses its thanks and appreciation to the Medical Assistants Society and to its representatives who have been so gracious to us during the last several days.

RESOLUTION OF APPRECIATION: NEWS MEDIA

WHEREAS, the 92nd Annual Session of the Arkansas Medical Society, just completed in Hot Springs, has been an outstanding success, and

WHEREAS, the Hot Springs Sentinel-Record, the Arkansas Gazette, the Arkansas Democrat, the Little Rock television stations, and other news media, have made available to the Medical Society extended coverage of its meetings,

NOW, THEREFORE BE IT RESOLVED, that the House of Delegates expresses its thanks for the Medical Society to the news media.

All resolutions were unanimously adopted by the House.

Speaker Price called the attention of the House to the fact that James M. Kolb will represent the Arkansas Medical Society as delegate to the AMA for the last time at the meeting in Miami Beach in December. Dr. Price praised Dr. Kolb for his years of service as delegate. Dr. Kolb expressed thanks to the members of the House for allowing him to serve as AMA delegate.

Speaker Price asked the Executive Vice President to present the nominees selected by the congressional districts for position on the State Boards. Mr. Schaefer read the names of nominees as follows:

Arkansas State Board of Health—

First Congressional District:
- Milton Deneke, West Memphis
- John Kirkley, Jonesboro
- Frank Rhodes, Osceola

Fifth Congressional District:
- C. A. Archer, Jr., Conway
- G. Thomas Jansen, Little Rock
- W. E. King, Russellville

Arkansas State Medical Board—

Fourth Congressional District:
- George F. Wynne, Warren

Upon the motion of Millard and Kemp, the House unanimously approved the nominations for submission to the Governor.

Speaker Price announced that the House should set the place for the 1970 Annual Session, noting Council action in recommending that the meeting again be held in Hot Springs. M. R. Springer of Garland County stated that Hot Springs would be happy to welcome the Society meeting again in 1970 and it was generally agreed to hold the 1970 meeting in Hot Springs.

Upon motion of Payton Kolb and T. E. Townsend, the final meeting of the House of Delegates of the 92nd Annual Session adjourned at 12:00 Noon.

REORGANIZATION MEETING OF THE COUNCIL

Immediately following adjournment of the House of Delegates, the Council held a brief meeting to reorganize. Dr. Thomas E. Townsend was re-elected chairman of the Council and Dr. Alfred Kahn, Jr., was re-elected to the position of editor of the Journal.

REGISTRATION

447	Physicians
101	Exhibitors
15	Medical Assistants, Nurses, Technicians
155	Auxiliary
4	Medical Students
23	Other Guests
745	Total

OFFICERS OF THE ARKANSAS MEDICAL SOCIETY—1968-1969

President	H. W. Thomas, 105 North Freeman, Dermott 71638
President-elect	Ross Fowler, 213 W. Stephenson, Harrison 72601
First Vice President	Harry Hayes, Jr., 500 So. University, Little Rock 72205
Second Vice President	C. F. Wilkins, Jr., 511 West Main, Russellville 72801
Third Vice President	Guy U. Robinson, 207 South Elm, Dumas 71639
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock 72202
Secretary Emeritus	W. R. Brooksher, Box 3096, Station A, Fort Smith 72901
Treasurer	Ben N. Saltzman, 126 West Sixth, Mountain Home 72653
Speaker, House of Delegates	John P. Price, 216 South Main, Monticello 71655
Vice Speaker of House	Amail Chudy, 1801 Maple, North Little Rock 72114
Journal Editor	Alfred Kahn, Jr., 1300 West Sixth, Little Rock 72201
Delegates to AMA	James M. Kolb, Sr., Box 472, Clarksville 72830
	Jack Kennedy, 1008 Pine, Arkadelphia 71923
Alternate Delegates to AMA	C. C. Long, 110 West Commercial, Ozark 72949
	Purcell Smith, 4001 West Capitol, Little Rock 72205
Executive Vice President	Mr. Paul C. Schaefer, P. O. Box 1208, Fort Smith 72901

EXECUTIVE COMMITTEE OF THE COUNCIL

Chairman of the Council	T. E. Townsend, 1310 Cherry, Pine Bluff 71601
President	H. W. Thomas, 105 North Freeman, Dermott 71638
President-elect	Ross Fowler, 213 W. Stephenson, Harrison 72601
Secretary	Elvin Shuffield, 1000 Wolfe, Little Rock 72202

COUNCILORS

District	Councilor Term Expires '69	Councilor Term Expires '70	Counties in District
1.	Eldon Fairley P.O. Box 71 Osceola 72370	Bascom P. Raney 403 E. Matthews Jonesboro 72401	Clay, Craighead, Crittenden, Fulton, Greene, Lawrence, Mississippi, Poinsett, Randolph and Sharp.
2.	Paul Gray P.O. Box 31 Batesville 72501	Hugh R. Edwards 607 Woodruff Searcy 72143	Cleburne, Conway, Faulkner, Independence, Izard, Jackson, Stone and White
3.	Paul Millar 18th & Buerkle Stuttgart 72160	L. J. P. Bell 626 Poplar Helena 72342	Arkansas, Cross, Lee, Lonoke, Monroe, Phillips, Prairie, St. Francis and Woodruff
4.	T. E. Townsend 1310 Cherry Pine Bluff 71601	Wayne Lazenby 145 W. Waterman Dumas 71639	Ashley, Chicot, Desha, Drew, Jefferson, and Lincoln
5.	Kenneth R. Duzan 443 West Oak El Dorado 71730	George F. Wynne 113 West Cypress Warren 71671	Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita and Union
6.	Karlton H. Kemp 408 Hazel Texarkana 75501	John P. Wood 906 Mena Mena 71953	Hempstead, Howard, Lafayette, Little River, Miller, Nevada, Pike, Polk and Sevier
7.	Jack Kennedy 1008 Pine Arkadelphia 71923	Robert F. McCrary Meyer Building Hot Springs 71901	Clark, Garland, Grant, Hot Spring, Montgomery and Saline

8.	W. Payton Kolb 1120 Marshall Little Rock 72201	James Morrison St. Vincent Inf. Little Rock 72207	Pulaski
9.	Stanley Applegate Springdale Clinic Springdale 72764	Henry V. Kirby 216 North Walnut Harrison 72601	Baxter, Benton, Boone, Carroll, Madison, Marion, Newton, Searcy, Van Buren and Washington
10.	C. C. Long 110 W. Commercial Ozark 72949	A. S. Koenig 922 Lexington Fort Smith 72901	Crawford, Franklin, Johnson, Logan, Perry, Pope, Scott, Sebastian and Yell

1968 OFFICERS — COUNTY MEDICAL SOCIETIES — ARKANSAS MEDICAL SOCIETY

ARKANSAS
Pres.—John P. Bethell, Route 1, Box 21D, Stuttgart 72160
Secy.—Lucille Champion, 403 West 6th, Stuttgart 72160

ASHLEY
Pres.—B. J. Jordan, 310 Main, Crossett 71635
Secy.—D. L. Toon, 310 Main, Crossett 71635

BAXTER
Pres.—Arthur L. Beard, 126 West 6th, Mountain Home 72653
Secy.—Ben N. Saltzman, 126 West 6th, Mountain Home 72653

BENTON
Pres.—E. N. McCollum, P. O. Box 96, Decatur 72722
Secy.—R. H. Weaver, P. O. Box 8, Gentry 72734

BOONE
Pres.—Paul L. Mahoney, Jr., 707 North Vine, Harrison 72601
Secy.—Albert R. Hammon, 520 North Spring, Harrison 72601

BRADLEY
Pres.—George F. Wynne, 113 West Cypress, Warren 71671
Secy.—D. D. Miles, 202 West Cypress, Warren 71671

CHICOT
Pres.—Major E. Smith, 124 East Peddicord, Dermott 71638
Secy.—H. W. Thomas, 105 North Freeman, Dermott 71638

CLARK
Pres.—Wallis A. Ross, 408 Clay, Arkadelphia 71923
Secy.—David G. Stevens, Clark County Mem. Hosp., Arkadelphia 71923

CLEBURNE
Pres.—Nathan L. Poff, 600 West Main, Heber Springs 72543
Secy.—Donald H. McClanahan, 600 West Main, Heber Springs 72543

COLUMBIA
Pres.—Paul Sizemore, 123 North Jackson, Magnolia 71753
Secy.—Charles L. Weber, 110 West North, Magnolia 71753

CONWAY
Pres.—G. B. Owens, 601 South Moose, Morrilton 72110
Secy.—Clifford L. Evans, 200 South Moose, Morrilton 72110

CRAIGHEAD-POINSETT
Pres.—H. D. Alston, 802 Jeter Drive, Jonesboro 72401
Secy.—Glen F. Baker, 814 Cobb, Jonesboro 72401

CRAWFORD
Pres.—Robert L. Calaway, Drawer C, Mulberry 72947
Secy.—Jack N. Thicksten, 164 Fayetteville, Alma 72921

CRITTENDEN
Pres.—David H. Pontius, Jr., 300 South Rhodes, West Memphis 72301
Secy.—Keith B. Kennedy, 316 Tyler, West Memphis 72301

CROSS
Pres.—V. J. Crain, 303 East Union, Wynne 72396
Secy.—W. G. Burks, 303 East Union, Wynne 72396

DALLAS
Pres.—Don G. Howard, 110 North Clifton, Fordyce 71742
Secy.—Jack T. Dobson, 110 North Clifton, Fordyce 71742

DESHA
Pres.—O. G. Blackwell, 145 West Waterman, Dumas 71639
Secy.—Howard R. Harris, 207 South Elm, Dumas 71639

DREW
Pres.—Van C. Binns, 201 East Trotter, Monticello 71655
Secy.—C. Lewis Hyatt, 515 North Main, Monticello 71655

FAULKNER
Pres.—Robert B. Benafield, 919 Locust, Conway 72032
Secy.—Bob G. Banister, 1300 Parkway, Conway 72032

Franklin	Pres.—Clifton C. Long, 110 West Commercial, Ozark 72949 Secy.—David L. Gibbons, Gibbons Clinic, Ozark 72949
Garland	Pres.—Walter Klugh, Jr., Meyer Building, Hot Springs 71901 Secy.—L. R. McFarland, 211 Hobson, Hot Springs 71901
Grant	Pres.—Curtis B. Clark, 200 South Rose, Sheridan 72150 Secy.—Clyde D. Paulk, 200 South Rose, Sheridan 72150
Greene-Clay	Pres.—Asa Crow, 320 South 10th, Paragould 72450 Secy.—Richard O. Martin, Community Hospital, Paragould 72422
Hempstead	Pres.—Jack L. Royal, P. O. Box 97, Hope 71801 Secy.—C. Lynn Harris, 820 South Main, Hope 71801
Hot Spring	Pres.—N. B. Kersh, 1415 West Smith, Malvern 72104 Secy.—C. R. Ellis, 1004 South Main, Malvern 72104
Howard-Pike	Pres.—M. H. Wilmoth, 14th and Leslie, Nashville 71852 Secy.—M. H. Wilmoth, 14th and Leslie, Nashville 71852
Independence	Pres.—A. H. Hathcock, P. O. Box 310, Batesville 72501 Secy.—James M. Stalker, 180 North 5th Street, Batesville 72501
Jackson	Pres.—M. H. Harris, 1205 McLain, Newport 72112 Secy.—John D. Ashley, 2nd and Laurel, Newport 72112
Jefferson	Pres.—J. S. Robinette, 1722 Doctor's Drive, Pine Bluff 71601 Secy.—George Roberson, 1421 Cherry, Pine Bluff 71601
Johnson	Pres.—Clyde H. Underwood, 307 East Main, Clarksville 72380 Secy.—R. H. Manley, 307 East Main, Clarksville 72830 Acting Secretary—James M. Kolb, Sr., P. O. Box 472, Clarksville 72830
Lafayette	Pres.—R. H. Harrison, Lewisville 71829 Secy.—W. J. Lee, P. O. Box 276, Stamps 71860
Lawrence	Pres.—Joe E. Hughes, 421 S. W. Third, Walnut Ridge 72476 Secy.—J. B. Elders, 321 S. W. Third, Walnut Ridge 72476
Lee	Pres.—E. C. Fields, Highway 1 South, Marianna 72360 Secy.—Floyd S. Dozier, 29 North Poplar, Marianna 72360
Lincoln	Pres.—James W. Freeland, P. O. Box 608, Star City 71667 Secy.—Richard C. Petty, P. O. Box 638, Star City 71667
Little River	Pres.—N. W. Peacock, Jr., P. O. Box 667, Ashdown 71822 Secy.—James D. Armstrong, Ashdown Clinic, Ashdown 71822
Logan	Pres.—George W. Smiley, State Sanatorium 72954 Secy.—James T. Smith, 710 North Express, Paris 72855
Lonoke	Pres.—Fred C. Inman, Jr., Court Street, Carlisle 72024 Secy.—B. E. Holmes, 305 West Front, Lonoke 72086
Miller	Pres.—Mitchell Young, 1001 Main, Texarkana 75501 Secy.—Larry Pebbles, 1400 College Drive, Texarkana 75501 Acting Secretary—Robert H. Chappell, P. O. Box 1288, Texarkana 75501 Executive Secy.—Mrs. Marilyn Pryor, P. O. Box 1843, Texarkana 75501
Mississippi	Pres.—John W. Hard, 527 North 6th, Blytheville 72315 Secy.—Eldon Fairley, P. O. Box 71, Osceola 72370
Monroe	Pres.—M. L. Dalton, 510 Main, Brinkley 72021 Secy.—N. C. David, Jr., 108 West Ash, Brinkley 72021
Nevada	Pres.—G. G. Hairston, 317 East 3rd, Prescott 71857 Secy.—Blake Crow, 327 East 2nd, Prescott 71857

OUACHITA	Pres.—Larry R. Killough, 530 Jefferson, S. W., Camden 71701
	Secy.—Lowell V. Ozment, 530 Jefferson, S.W., Camden 71701
PHILLIPS	Pres.—L. J. Pat Bell, 626 Poplar, Helena 72342
	Secy.—Alfred A. Berger, 801 Perry, Helena 72342
POLK	Pres.—David P. Hefner, 600 West 7th, Mena 71953
	Secy.—Henry N. Rogers, 600 West 7th, Mena 71953
POPE-YELL	Pres.—David S. Bachman, 511 West Main, Russellville 72801
	Secy.—W. E. King, 511 West Main, Russellville 72801
PULASKI	Pres.—William S. Orr, Jr., 500 South University, Little Rock 72205
	Secy.—M. D. McClain, 1120 Marshall, Little Rock 72202
	Executive Secy.—Mr. Paul Harris, 510 Pulaski, Little Rock 72201
RANDOLPH	Pres.—Thomas B. DeClerk, 204 Thomasville, Pocahontas 72455
	Secy.—Norman K. Smith, 108 Van Bibber, Pocahontas 72455
SALINE	Pres.—Donald L. Viner, 212 West Sevier, Benton 72015
	Secy.—James C. Bethel, 221 East Sevier, Benton 72015
SCOTT	Pres.—Harold B. Wright, P. O. Box 249, Waldron 72958
	Secy.—James A. Jenkins, Waldron 72958
SEARCY	Pres.—John H. Williams, P. O. Box 177, Marshall 72650
	Secy.—John A. Hall, 302 East Main, Clinton 72031
SEBASTIAN	Pres.—Frank M. Lockwood, 1500 Dodson, Fort Smith 72901
	Secy.—Hugh Lewing, 404 South 16th, Fort Smith 72901
	Assistant to the Secy.—Mrs. Jackie Boyd, c/o Sparks Hospital, Fort Smith 72901
SEVIER	Pres.—R. B. Dickinson, 302 North 4th, DeQueen 71832
	Secy.—Frank Daniel, 421 West Gilson, DeQueen 71832
ST. FRANCIS	Pres.—A. M. Bradley, P. O. Box 70, Forrest City 72335
	Secy.—E. Morgan Collins, Forrest City Clinic, Forrest City 72335
UNION	Pres.—Larkin M. Wilson, 430 S. W. Avenue, El Dorado 71730
	Secy.—Ronald M. Lewis, 460 West Oak, El Dorado 71730
WASHINGTON	Pres.—Joe C. Parker, 130 North Spring, Springdale 72764
	Secy.—Robert H. McCollum, 102 West Dickson, Fayetteville 72701
WHITE	Pres.—C. H. Paine, Jr., 202 North Blakeney, Searcy 72143
	Secy.—Hugh R. Edwards, 607 Woodruff, Searcy 72143
WOODRUFF	Pres.—James E. Rowe, 306 East Third, McCrory 72101
	Secy.—B. E. Hendrixson, 306 East Third, McCrory 72101

COMMITTEES
1968 - 1969
Arkansas Medical Society

	Term Expires:
COMMITTEE ON CANCER CONTROL	
Robert L. McDonald, 1108½ Poplar, Pine Bluff 71601	1971
Doyne Dodd, Post Office Box 3488, Station A, Fort Smith 72901	1971
Edward M. Cooper, 224 East Matthews, Jonesboro 72401	1969
Glenn P. Schoettle, 308 South Rhodes, West Memphis 72301	1969
Frank Kumpuris, 415 North University, Little Rock 72205 *CHAIRMAN*	1970
Charles R. Henry, 500 South University, Little Rock 72205	1970
COMMITTEE ON MEDICAL LEGISLATION	
Ross Maynard, 303 National Building, Pine Bluff 71601	1971
Friedman Sisco, 101 South Shilo, Springdale 72764	1971
H. A. Crane, Jr., 1107 Cherry, Pine Bluff 71601	1971
Elvin Shuffield, 1000 Wolfe, Little Rock 72202 *CHAIRMAN*	1969

	Term Expires:
A. C. Bradford, 100 South 14th, Fort Smith 72901	1969
William A. Snodgrass, Jr., Donaghey Building, Little Rock 72201	1969
Alan G. Cazort, 4001 West Capitol, Little Rock 72205	1970
W. Payton Kolb, 1120 Marshall, Little Rock 72202	1970
Martin Eisele, 101 Whittington, Hot Springs 71901	1970
SUB-COMMITTEE ON NATIONAL LEGISLATION	
George F. Wynne, 113 West Cypress, Warren 71671	1971
Dale Alford, 115 East Capitol, Little Rock 72201	1971
Kenneth R. Duzan, 433 West Oak, El Dorado 71730	1969
John C. Faris, Cotton Belt Hospital, Texarkana 75501	1969
Omer Bradsher, 901 West Kingshighway, Paragould 72450	1970
H. A. Crane, Jr., 1107 Cherry, Pine Bluff 71601 *CHAIRMAN*	1970
COMMITTEE ON PUBLIC HEALTH (Rural Health)	
Wayne Lazenby, 145 West Waterman, Dumas 71639	1971
C. A. Archer, Jr. 919 Locust, Conway 72032	1971
Vestal B. Smith, P.O. Box 614, Marked Tree 72365	1969
Omer E. Bradsher, 901 West Kingshighway, Paragould 72450	1969
Ben N. Saltzman, 126 West 6th, Mountain Home *CHAIRMAN*	1970
Edgar J. Easley, State Health Department, Little Rock 72201	1970
John P. Bethell, Jr., Route 1, Box 21-D, Stuttgart 72160	1971
SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH	
Jack Dobson, 110 North Clifton, Fordyce 71742	1971
M. R. Springer, Jr., 236 Central, Hot Springs 71901	1971
Charles G. Swingle, 105 Nathan, Marked Tree 72365	1971
Hugh R. Edwards, 607 Woodruff, Searcy 72143	1969
Purcell Smith, Jr., 4001 West Capitol, Little Rock 72205 *CHAIRMAN*	1970
SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE	
John W. Trieschmann, 236 Woodbine, Hot Springs 71901	1971
Robert L. Sherman, 408 South 16th Street, Fort Smith 72901	1971
Mose Smith, 111, 5600 West Markham, Little Rock 72205	1969
Roger Bost, 4301 West Markham, Little Rock 72205 *CHAIRMAN*	1970
SUB-COMMITTEE ON TUBERCULOSIS	
W. Paul Reagan, 7th and High, Little Rock 72202	1971
Charles C. Tracy, 1421 Cherry, Pine Bluff 71601	1971
Joseph G. Shelton, Jr., Box 697, Ashdown 71822	1971
Harley Darnall, 500 Lexington, Fort Smith 72901	1969
Kenneth A. Siler, 707 North Vine, Harrison 72601	1969
John C. Schultz, 900 North University, Little Rock 72207 *CHAIRMAN*	1970
Joe B. Scruggs, 1612 Maryland, Little Rock 72202	1970
Advisory:	
Bernard Capes, 130 Plaza, West Helena 72390	
Jacob Ellis, 430 S. W. Avenue, El Dorado 71730	
Rodney Baker, 22 East Spring, Fayetteville 72701	
James Cornett, 5905 "R" Street, Little Rock 72207	
SUB-COMMITTEE ON AGING	
Sanford C. Monroe, 1421 Cherry, Pine Bluff 71601 *CHAIRMAN*	1971
John F. Guenthner, 126 West Sixth, Mountain Home 72653	1971
Don G. Howard, 110 North Clifton, Fordyce 71655	1969
Harold H. Hedges, 814 North University, Little Rock 72205	1970
Thomas H. Wortham, 813 Marshall Road, Jacksonville 72076	1970
SUB-COMMITTEE ON PHYSICAL FITNESS AND SCHOOL HEALTH	
J. A. Harrel, Jr., 4601 Woodlawn, Little Rock 72205	1971
Robert Langston, 520 North Spring, Harrison 72601	1971
Jack W. Kennedy, 1008 Pine, Arkadelphia 71923	1969
Francis M. Henderson, 1310 Cherry, Pine Bluff 71601 *CHAIRMAN*	1970
SUB-COMMITTEE ON INDUSTRIAL HEALTH	
James C. Bethel, 221 East Sevier, Benton 72015	1971
William B. Harrell, 317 State Line, Texarkana 75501	1971
John D. Olson, 1500 Dodson, Fort Smith 72901	1969
William L. Steele, 5520 West Markham, Little Rock 72205	1969
Phillip T. Cullen, 500 South University, Little Rock 72205 *CHAIRMAN*	1970
SUB-COMMITTEE ON MENTAL HEALTH	
W. C. Whaley, 203 East Church, Warren 71671	1971
James D. Rankin, Hamburg Clinic, Hamburg 71646	1971
William G. Reese, 1301 West Markham, Little Rock 72205	1969
W. Payton Kolb, 1120 Marshall, Little Rock 72202	1969
R. H. Whitehead, Jr., Donaghey Building, Little Rock 72201	1969
W. O. Young, Donaghey Building, Little Rock 72201 *CHAIRMAN*	1970
George G. Regnier, 500 South University, Little Rock 72205	1970
Edwin V. Dildy, Jr., 122 West Hempstead, Nashville 71852	1970
IMMUNIZATION SUB-COMMITTEE	
Wilbur G. Lawson, 207 East Dickson, Fayetteville 72701 *CHAIRMAN*	1971
Howard R. Harris, 207 South Elm, Dumas 71639	1971
John C. Watts, 1400 South "D" Street, Forth Smith 72901	1969
Thomas E. Townsend, 1310 Cherry, Pine Bluff 71601	1969
Vida F. Gordon, 4301 West Markham, Little Rock 72205	1970

	Term Expires:
Fred Lee, West Markham at Tyler, Little Rock 72201	1970
SUB-COMMITTEE ON TRAFFIC SAFETY	
Lonnie R. Turney, Second and Pine, McGehee 71654	1971
Louise Henry, 602 Garrison, Fort Smith 72901 *CHAIRMAN*	1969
James G. Stuckey, 500 South University, Little Rock 72205	1969
Albert R. Hammon, 520 North Spring, Harrison 72601	1969
J. Warren Murry, 1749 North College, Fayetteville 72701	1969
Richard B. Clark, 4301 West Markham, Little Rock 72205	1970
Ray Jouett, Donaghey Building, Little Rock 72201	1970
SUB-COMMITTEE ON LIAISON WITH VOCATIONAL REHABILITATION	
Major E. Smith, 124 East Peddicord, Dermott 71638	1971
Paul G. Henley, 700 West Faulkner, El Dorado 71730 *CHAIRMAN*	1971
James D. Mashburn, 207 East Dickson, Fayetteville 72701	1971
U. Lee Smith, Mineral Springs Highway, Nashville 71852	1969
Robert H. Atkinson, 236 Central, Hot Springs 71901	1969
John Wood, 907 Mena, Mena 71953	1970
H. King Wade, Jr., 231 Central, Hot Springs 71901	1970
COMMITTEE ON MEDICAL EDUCATION	
Winston K. Shorey, 4301 West Markham, Little Rock 72205	1971
Oliver C. Raney, 1720 West 42nd, Pine Bluff 71601	1971
James W. Hawley, P.O. Box 38, Camden 71701	1969
W. H. Calaway, North Arkansas Clinic, Batesville 72501	1969
Calvin J. Dillaha, 500 South University, Little Rock 72205 *CHAIRMAN*	1970
Lee B. Parker, 241 West Spring, Fayetteville 72701	1970
SUB-COMMITTEE ON POSTGRADUATE EDUCATION	
James S. Taylor, 4301 West Markham, Little Rock 72205	1971
James K. Patrick, 241 West Spring, Fayetteville 72701 *CHAIRMAN*	1971
T. A. Feild, III, 3600 North "O", Fort Smith 72901	1971
John T. Riggin, 4301 West Markham, Little Rock 72205	1971
George F. Wynne, 113 West Cypress, Warren 71671	1969
George K. Mitchell, Post Office Box 2181, Little Rock 72203	1970
COMMITTEE ON HOSPITALS	
George B. Talbot, 4121 Cherry, Pine Bluff 71601	1971
John Wood, 907 Mena, Mena 71953	1971
Wright Hawkins, 100 South 14th, Fort Smith 72901	1969
M. H. Harris, 1205 McLain, Newport 72112	1969
Art B. Martin, 1500 Dodson, Fort Smith 72901 *CHAIRMAN*	1970
Martin F. Heidgen, 1808 West Main, Russellville 72801	1970
COMMITTEE ON PUBLIC RELATIONS	
Gordon P. Oates, 1612 Maryland, Little Rock 72202	1971
Paul A. Wallick, 216 South Main, Monticello 71655	1971
A. C. Bradford, 100 South 14th, Fort Smith 72901 *CHAIRMAN*	1969
Omer E. Bradsher, 901 West Kingshighway, Paragould 72450	1969
G. Thomas Jansen, 500 South University, Little Rock 72205	1970
Neil E. Compton, Post Office Box 209, Bentonville 72712	1970
SUB-COMMITTEE ON LIAISON WITH THE AUXILIARY	
Joseph A. Norton, 8570 Cantrell Road, Little Rock 72207 *CHAIRMAN*	1969
Sanford C. Monroe, 1421 Cherry, Pine Bluff 71601	1969
Art B. Martin, 1500 Dodson, Fort Smith 72901	1969
C. C. Long, 101 East Commercial, Ozark 72949	1969
Milton John, Route 1, Box 21-D, Stuttgart 72160	1969
SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE	
John B. Nettles, 4301 West Markham, Little Rock 72205	1971
Monroe D. McClain, 1120 Marshall, Little Rock 72202	1971
Edgar J. Easley, State Health Department, Little Rock 72201 *CHAIRMAN*	1971
L. U. Rushing, P.O. Box 1912 Texarkana 75501	1971
Russell W. Cobb, 1420 Potts, Malvern 72104	1971
Bedford W. Smith, 300 South Rhodes, West Memphis 72301	1969
Quin M. Baber, 212 West Sevier, Benton 72015	1970
ADVISORY SUB-COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY	
E. Frank Reed, Jr., 916 Cherry, Pine Bluff 71601	1970
Millard W. Black, 705 North Ash, Little Rock 72205 *CHAIRMAN*	1971
A. C. Bradford, 100 South 14th, Fort Smith 72901	1971
Betty Lowe, 401 East Fifth Street, Texarkana 75501	1971
COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION	
Joseph L. Rosenzweig, 236 Woodbine, Hot Springs 71901 *CHAIRMAN*	1971
John McCollough Smith, 4000 Woodlawn, Little Rock 72205	1971
Art B. Martin, 1500 Dodson, Fort Smith 72901	1971
Joseph S. Robinette, 1722 Doctors Drive, Pine Bluff 71601	1971
Betty Ann Lowe, 401 East Fifth, Texarkana 75501	1971
A. S. Koenig, 922 Lexington, Fort Smith 72901	1969
Wright Hawkins, 100 South 14th, Fort Smith 72901	1969
E. Z. Hornberger, 404 South 16th, Fort Smith 72901	1969
J. Harry Hayes, Jr., 500 South University, Little Rock 72205	1970

Term Expires:

Amail Cindy, 1801 Maple, North Little Rock 72114 1970
John W. Lane, 1612 Maryland, Little Rock 72202 1970

COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS

A. J. Forestiere, Post Office Box 106, Harrisburg 72432 1971
John H. Delamore, 1100 West Third, Fordyce 71742 1971
J. Arnold Henry, 1605 West Main, Russellville 72801 1971
E. Z. Hornberger, 404 South 16th, Fort Smith 72901 1971
Chalmers S. Pool, VA Hospital, North Little Rock 72114 1969
James R. Walt, 500 South University, Little Rock 72205 *CHAIRMAN* 1970

COMMITTEE ON INSURANCE

Charles F. Wilkins, 511 West Main, Russellville 72801 1971
L. J. Pat Bell, 626 Poplar, Helena 72342 1971
Guy M. Farris, 6213 Lee Avenue, Little Rock 72205 1969
Russell W. Cobb, 1420 Potts, Malvern 72104 1969
Thomas D. Honeycutt, 509 Cross, Little Rock 72201 *CHAIRMAN* 1970
David H. Newbern, St. Vincent Infirmary, Little Rock 72201 1970

COMMITTEE ON LIAISON WITH THE NURSING PROFESSION

James D. Harbison, Lake Village Infirmary, Lake Village 71653 1971
R. H. Whitehead, Jr., Donaghey Building, Little Rock 72201 1969
L. L. Hubener, 509 Hutson St., Blytheville 72315 1969
Frank Padberg, 500 South University, Little Rock 72205 *CHAIRMAN* 1970
James W. Headstream, 500 South University, Little Rock 72205 1970
J. R. Pierce, Jr., 1712 West 42nd Avenue, Pine Bluff 71601 1971

COMMITTEE ON MEDICINE AND RELIGION

Kenneth A. Siler, 707 North Vine, Harrison 72601 1971
Fred Gordy, 552 Locust, Conway 72032 1971
William E. Knight, 1500 Dodson, Fort Smith 72901 1969
Jerome S. Levy, 500 South University, Little Rock 72205 *CHAIRMAN* 1970
Bruce E. Schratz, 1801 Maple, North Little Rock 72114 1970
John H. Miller, 415 Hospital Drive, S.W., Camden 71701 1969

COMMITTEE ON CONSTITUTIONAL REVISION — Council Committee

Lee B. Parker, 241 West Spring, Fayetteville 72701 *CHAIRMAN*
Harry Hayes, Jr., 500 South University, Little Rock 72205
Paul Rogers, P.O. Box 3488, Station A, Fort Smith 72901
H. King Wade, Jr., 231 Central, Hot Springs 71901

BUDGET COMMITTEE — Council Committee

W. R. Brooksher, P.O. Box 3488, Station A, Fort Smith 72901 *CHAIRMAN*
H. W. Thomas, 105 North Freeman, Dermott 71638
Ben N. Saltzman, 126 West 6th, Mountain Home 72653

SENIOR MEDICAL DAY COMMITTEE — Council Committee

Bill Dave Stewart, 415 North University, Little Rock 72205 *CHAIRMAN*
Calvin R. Simmons, 1714 West 42nd, Pine Bluff 71601

LIAISON COMMITTEE WITH STATE WELFARE COMMITTEE — Council Committee

(Composed of Executive Committee)

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Robert B. Benafield, 919 Locust, Conway 72032
Carl Northcutt, Route 1, Box 21-D, Stuttgart 72160
Lee B. Parker, 241 West Spring, Fayetteville 72701
Berry L. Moore, Jr., 615 West Grove, El Dorado 71730
Robert M. Bransford, 401 East 5th, Texarkana 75501
Martin Eisele, 101 Whittington, Hot Springs 71901
George K. Mitchell, P.O. Box 2181, Little Rock 72205
Arthur Moore, 675 Lollar Lane, Fayetteville 72701
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Edwin L. Dunaway, 919 Locust, Conway 72032
T. S. Van Duyn, P.O. Box 110, Stuttgart 72160
W. A. Regnier, 115 Pine, Crossett 71635
Allen R. Russell, 1024 Poplar, Pine Bluff 71601
James F. Clark, 524 West Faulkner, El Dorado 71730
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Expires:
Expires:

Urology: Carl Wilson, 1500 Dodson, Fort Smith 72901

Allergy: Purcell Smith, 4001 West Capitol, Little Rock 72205

Anesthesiology: John L. Weare, 1120 Marshall, Little Rock 72202

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Psychiatry: Frank Westerfield, 1120 Marshall, Little Rock 72202

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Term
Term

Orthopedics: Elvin Shuffield, 1000 Wolfe, Little Rock 72202

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MRS. C. D. BURROUGHS

PINE BLUFF

President 1968-1969

WOMAN'S AUXILIARY TO THE

ARKANSAS MEDICAL SOCIETY

WOMAN'S AUXILIARY TO ARKANSAS MEDICAL SOCIETY ANNUAL CONVENTION — 1968

The Woman's Auxiliary to the Arkansas Medical Society 44th Annual Convention was held April 21-23, 1968, with headquarters at the Arlington Hotel in Hot Springs.

Mrs. Art B. Martin, President, and Mrs. C. D. Burroughs, President-elect, entertained Auxiliary members at a tea Sunday afternoon honoring outgoing and incoming Board members, following a pre-convention Board meeting.

Mrs. Louis K. Hundley served as Convention General Chairman. Members were welcomed to convention by Mrs. M. R. Springer, Jr., President, Garland County Auxiliary; and Mrs. Frank Padberg gave the response. Greetings were brought from the Arkansas Medical Society by Dr. Joseph Norton, President, and Mr. Paul Schaefer, Executive Vice-President. Honor guests for the convention were Mrs. C. C. Long, Jr., President-elect of Woman's Auxiliary to the American Medical Association; Mrs. Karl Ritter, President of Woman's Auxiliary to American Medical Association; and Mrs. E. F. Butler, President, Woman's Auxiliary to the Missouri Medical Society.

Auxiliary members were guests of the Hot Springs Rehabilitation Center for luncheon on Monday, Mrs. Gaston Hebert in charge of arrangements, honoring Mrs. Ritter who gave the address in which she stressed the importance of county auxiliaries. A tour of the Rehabilitation Center followed the luncheon.

A tea was held Monday afternoon at the Arlington Hotel honoring Mrs. Long, who will be installed as American Medical Auxiliary President in San Francisco in June. Esther is Past President of Woman's Auxiliary to Arkansas Medical Society and of Franklin-Logan County Auxiliary, and this is a great achievement for her and for our Auxiliary.

A brunch, with Mrs. Jack Kennedy, Clark County, Chairman, preceded the first General Session, and Mrs. Paul Gray was hostess for the Past Presidents' Breakfast on Tuesday which sixteen Past Presidents attended.

Members of the Woman's Auxiliary to the Jefferson County Medical Society, Mrs. E. L. Hutchison, Chairman, were hostesses for a luncheon Tuesday in Cafe 2 of the Arlington Hotel honoring Mrs. C. D. Burroughs, incoming President of Woman's Auxiliary to the Arkansas Medical Society.

Awards were presented at the luncheons for outstanding work in supporting AMA-ERF by Mrs. Charles Wilkins to: Franklin-Logan for greatest per cent increase; Union for greatest per capita donations, and to Bowie-Miller for greatest amount raised by special project, and for Doctor's Day observances by Mrs. H. W. Keisker to: Craighead-Poinsett, first; Sebastian, second; Washington, third, for counties with membership over 25, and to Boone, first; Clark, second, for counties with membership under 25. County Charters were presented to auxiliaries on which the State Historian, Mrs. Frank Padberg, has histories and charter dates.

The Auxiliary joined the Society in a memorial service for deceased members of both organizations. A necrology list was read by Mrs. Martin of the following auxiliary members: Mrs. Byron Grimmett, Waldo; Mrs. Charles William Dixon, Gould; Mrs. Nye Compton, Mrs. C. C. Reed, Sr., Mrs. James S. Taylor, and Mrs. Pat Murphy, Little Rock; Mrs. S. A. Drennan, Stuttgart; and Mrs. F. R. Mahoney, Sr., El Dorado.

A Memorial Resolution was placed in minutes and contribution made to Ilse F. Oates Student Loan Fund in memory of Miss Florence Lawson, Little Rock.

The Auxiliary voted to cooperate with Arkansas Medical Society request for help with health careers exhibit booth at Arkansas Livestock Show in Little Rock.

Oral reports were heard from committee chairmen and county presidents. A project of special interest was reported by Washington County of work with the schools on family life program, with a film they purchased, "Parent to Child on Sex Education," being well received.

Mrs. L. A. Whittaker gave report of Courtesy Resolutions Committee. A total of 145 registered for convention.

New Auxiliary officers for 1968-69 are:

- President, Mrs. C. D. Burroughs, Pine Bluff
- President-Elect, Mrs. Carl Parkerson, Hot Springs
- Northeast Vice-President, Mrs. Jabez F. Jackson, Newport
- Southeast Vice-President, Mrs. W. R. Meredith, Pine Bluff
- Southwest Vice-President, Mrs. Lynn Harris, Hope
- Northwest Vice-President, Mrs. W. E.

King, Jr., Russellville
Recording Secretary, Mrs. Neil E. Crow, Fort Smith
Treasurer, Mrs. W. Myers Smith, North Little Rock

Mrs. Burroughs gave the President's Message at the Tuesday luncheon, emphasizing the importance of Auxiliary work.

A post-convention Board meeting and school of information followed the adjournment of the 44th Annual Convention.

Acoustic Distinctions in Cardiac Auscultation

A. R. Feinstein (VA Hosp, New Haven, Conn)
Arch Intern Med 121:209-224 (March) 1968

Many critical acoustic aspects of cardiac auscultation cannot be adequately portrayed by phonocardiograms. To achieve greater scientific precision in auditory auscultation, clinicians must improve the way they listen to and describe cardiac noises. Acoustic phenomena can be directly communicated by tactile simulation with stethoscope, or by the vocal use of onomatopoeic syllables. A proper description of the phenomena requires a "dissection" of acoustic gestalts into the sonority, chronometry, and anatomy of what is heard. Included in the dissection is a consideration of the accentuations of cadence, the "masking" produced by synecphonesis, and the effects of hydraulic distortion. As an auscultator, the clinician is superior to the graphic machine because he can perceive acoustic as well as visual patterns; he can anticipate and recognize distortions, and he can clarify certain problems by the ad hoc use of positional maneuvers.

Glucose Tolerance and Endometrial Carcinoma

L. J. Dunn et al (Univ Hosp, Iowa City)
Arch Intern Med 121:246-254 (March) 1968

The concept that the triad of diabetes mellitus, obesity, and hypertension is of etiological and diagnostic significance in endometrial carcinoma was tested in 55 patients with endometrial carcinoma and 114 control patients. Factors which might influence glucose tolerance such as age, parity, obesity, hypertension, family history of diabetes, and anterior pituitary function were evaluated. Both groups consisted of patients who had postmenopausal bleeding, and were divided into those with endometrial carcinoma and those with neither endometrial carcinoma nor hyperplasia. Abnormal glucose metabolism and sustained arterial hypertension were no more frequent in patients with endometrial carcinoma than in the controls. There appeared to be no association between increased parity and decreased glucose tolerance, nor between the degree of obesity and decreased glucose tolerance. The carcinoma group was significantly more obese and less parous than the control group.

Progress Report on the Jefferson Hospital Tuberculosis Project

W. Paul Reagan, M. D.*

The 1967 regular session of the Arkansas Legislature authorized the Arkansas State Health Department to initate a pilot project to demonstrate the feasibility of managing tuberculosis suspects and cases in general hospitals. Each patient was to receive fully private medical care with state payment of billed charges of both hospital and physician, in excess of patient's personal insurance coverage. The Jefferson Hospital, Pine Bluff, Arkansas, was the first hospital utilized in this project. (See photograph) This report concerns the preparation for the project at the Jefferson Hospital and a summary of the first six month's clinical experience.

*Director, Division of Communicable Diseases, Farm Bureau Building, 7th and High, Little Rock, Ark. 72202.

BACKGROUND

From 1962-1967 a network of local chest clinics was developed in Arkansas which by July 1967 served 60 counties. Consultants to these chest clinics were physicians in private practice who had an interest in tuberculosis and other chest diseases and who had participated in a series of training conferences. Most of these physicians had also attended at least one regional or national training course in the modern management of tuberculosis. To support these local clinics an intensive in-service training program for public health nurses and local clerical personnel had been completed. Furthermore, sufficient support to the tuberculosis section of the State Hygienic

Nurse's Aide with Patient

By utilizing ultraviolet light irradiation of upper room air and prompt specific drug therapy, tuberculosis patients are treated as regular medical patients without dehumanizing isolation techniques.

Hospital Exterior

The first floor N.E. of the 300 bed Jefferson Hospital, Pine Bluff, Arkansas, is used in part for tuberculosis suspects and cases. Patients on therapy and asymptomatic have access to the pine woods pictured.

Laboratory made it possible to provide comprehensive bacteriological services to the clinics. The possibility of adequate out-patient supervision of tuberculosis patients and their contacts was a reality at the onset of the project.

THE PROBLEM

In Arkansas, as in most of this country, tuberculosis patients are handled in specialized hospitals located from the mainstream of society. It has become clear in recent years that the available tuberculosis drugs are at least 95% effective in rendering the active case non-infectious if the proper drugs are taken by the patient for a sufficient period of time—usually a minimum of two years. Thus, motivation of the patient to cooperate seems the primary problem of tuberculosis control. A large factor in the dissatisfaction that patients have experienced seems to be prolonged hospitalization in the isolated hospital. This, all too often, results in irregular discharges from the hospital with a resultant break in the continuity of medical care. Recent Arkansas experience with the traditional type of tuberculosis hospitalization is summarized in Table I. The prolonged hospitalization and the high rate of irregular discharges is clear.

TABLE I
NEWLY REPORTED CASES OF ACTIVE TUBERCULOSIS ARKANSAS TUBERCULOSIS SANATORIUM REPORTED JANUARY THROUGH JUNE, 1967*
AS OF MARCH 15, 1968

	Number of Patients	Average Length of Hospitalization
Still Hospitalized	13	369 days
Discharged With Medical Advice	36	193 days
Discharged Against Medical Advice	33	146 days
Died At Sanatorium	14	132 days
TOTAL	96	

*From data recorded by Division of Communicable Disease Control, Arkansas State Health Department.

Patients in Hall

A general medical wing is utilized for tuberculosis suspects and cases. When patients are on therapy and asymptomatic they are encouraged to be fully ambulatory.

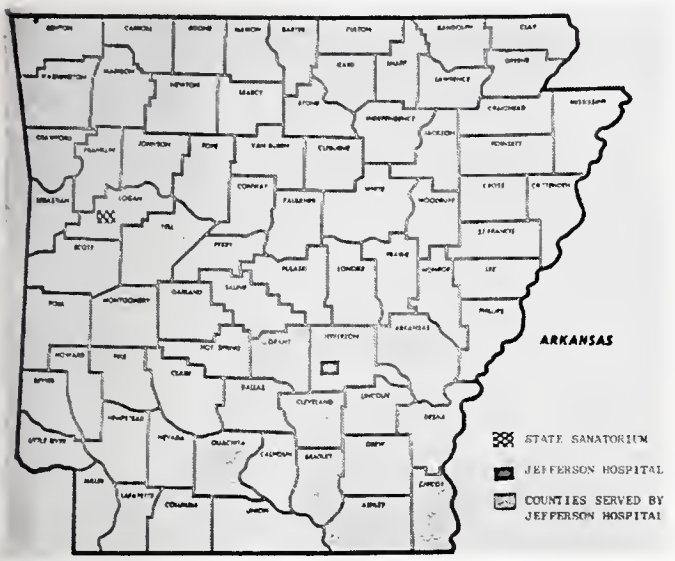
BASIC PREMISE

Utilizing ultraviolet light irradiation of the patient's room air and prompt adequate drug therapy, the tuberculosis patient can be managed in a general medical unit of a general hospital. Furthermore, maximum motivation of the patient to accept therapy can be achieved by treating him as a fully private patient and providing his physician with adequate consultation both in the hospital and during the period of necessary out-patient supervision. Because of the efficiency of private medical care resulting in short term hospitalization and the encouragement of patients to participate to the extent of their resources in the cost of hospitalization, this type of medical care will also be economical to the state.

PREPARATION

The project plan was considered and approved by the medical staff and board of the Jefferson Hospital and the House of Delegates of the Arkansas Medical Society. A tuberculosis control program was initiated for hospital personnel utilizing tuberculin skin testing and x-rays. An explanation of the project was given to all personnel. Key nursing personnel received, in depth, experience in the tuberculosis section of the Little Rock Veteran's Administration Hospital. Ultraviolet lights were installed in the rooms of a general medical wing. (See photograph) The hospital laboratory was equipped to handle mycobacterial and fungus specimens and laboratory personnel received specialized training in this procedure. A weekly chest conference was scheduled to which all new admissions were to be presented. On July 1, 1967, tuberculosis suspects and cases were admitted, primarily from a 12-county area to which members of the staff of the Jefferson Hospital served as chest clinic consultants. (See map) Room isolation of new tuberculosis suspects was maintained until they were on adequate chemo-

USE OF REGIONAL GENERAL HOSPITAL FOR MANAGEMENT OF TUBERCULOSIS SUSPECTS AND CASES



therapy and asymptomatic. (Usually a matter of a few days). Public Health Nursing personnel were assigned part time to coordinate the flow of patient information to and from the hospital and to plan for out-patient follow-up. Full details of these preparations will be published elsewhere.

RESULTS

The first six months experience in managing tuberculosis patients at the Jefferson Hospital, Pine Bluff, Arkansas, has clearly demonstrated the feasibility of this method of medical care. The project has been well accepted by the staff of the hospital and has resulted not only in excellent medical care of patients but also a high degree of motivation of these patients to maintain long term out-patient supervision. There have been no irregular discharges and no complaints by non-tuberculosis patients who were on the same medical wing. A weekly chest conference has been maintained and utilized not only for the presentation of new cases but also the academic discussion of the progress and problems of all cases. A consultant to the State Health Department—not a member of the staff of the Jefferson Hospital—has the responsibility of accepting new tuberculosis suspects into the program at each weekly conference. During the first six months 93 individuals were admitted as tuberculosis suspects or cases, utilizing an average of 18 beds of a 31 bed general medical unit. During this same interval an average of 10 beds were utilized for non-tuberculous patients. Eighteen or 38% of the physicians who are members of the staff of the Jefferson Hospital supervised tuberculosis patients during this interval. A tuberculin skin testing program, repeated every six months for personnel in the unit utilized, has not demonstrated any skin test converters.

Patients were discharged by their private physicians on an individual basis. No postive sputum patient failed to convert his sputum if treatment was initiated. Two old cases with resistant organisms were not treated with second line drugs and remained postive.

Details of this six month's experience are summarized in Tables II, III, IV, and V.

TABLE II
ADMISSIONS TO PULMONARY DISEASE UNIT JEFFERSON HOSPITAL JULY-DECEMBER, 1967

ADMISSIONS	TOTALS	SEX		AGE GROUP		
		Male	Female	Under 25	25-65	Over 65
Total	93	59	34	9	53	31
Tuberculosis Suspects	65	38	27	7	39	19
Old Tuberculosis Cases	14	10	4	0	7	7
Retreatment—TB Cases	10	9	1	2	4	4
Mycoses and Atypical Mycobacterium	4	2	2	0	3	1

TABLE III
NEW TREATMENT CASES OF TUBERCULOSIS HOSPITALIZED IN JEFFERSON HOSPITAL JULY-DECEMBER, 1967

TOTAL CASES	EXTENT OF DISEASE				
	Minimal	Moderately Advanced	Far Advanced	Miliary	Other
41	4	16	18	1	2

SUMMARY

A project to demonstrate the feasibility of managing tuberculosis suspects and cases on a general medical unit of the Jefferson Hospital, Pine Bluff, Arkansas, was initiated July 1, 1967. Ninety-three individuals were hospitalized during the first six months. Their diagnosis, distribution by age and sex, hospitalization experience and current medical and socio-economical status, are summarized.

It seems clear that this method of managing tu-

TABLE IV
DURATION AND COST OF HOSPITALIZATION FOR TUBERCULOSIS SUSPECTS AND CASES HOSPITALIZED IN JEFFERSON HOSPITAL JULY-DECEMBER, 1967

	Total Patients	Average Length of Hospitalization*	Average Total Cost	Average Cost To State**
Totals	93	34 days	$ 1329.69	$ 876.36
New Treatment Cases	41	43 days	$ 1564.53	$ 1100.34
Positive Bacteriology Cases	31	47 days	1691.20	1282.26
Negative Bacteriology Cases	5	23 days	945.08	424.15
Reactivated Old Cases	5	39 days	1400.66	548.67
Retreatment Cases	10	67 days	2570.79	1764.43
TB Suspects—Cleared	13	8 days	494.07	197.11
TB Suspects—Other Diagnosis	16	19 days	886.17	406.87
Old Cases	9	15 days	749.35	613.12
Mycoses and Atypical Mycobacterium	4	40 days	1612.84	1038.19

*Cumulative for individual patients if more than one hospitalization.
**After hospitalization insurance utilized. (Excludes physicians fees which are approximately one-third of hospital cost.)

TABLE V
CURRENT STATUS SUMMARY TUBERCULOSIS CASES HOSPITALIZED JEFFERSON HOSPITAL — JULY-DECEMBER, 1967 AS OF APRIL 1, 1968

	Total	Current Supervision	Drugs Taken	Current Negative Bacteriology	Rtn. to Normal Employment	Current Contact Evaluation	Deaths
New Treatment Cases							
Positive Bacteriology	31	31	31	27**	19	28	
Negative Bacteriology	5	4*	4	4	4	5	
Reactivated Old Cases	5	4	4	4	3	4	1
Retreatment Cases	10	9	9	9	8	10	1

*One living patient not under supervision, a case of TB Pericarditis who moved to Detroit, has now returned to Arkansas and re-evaluation pending.
**Four patients with negative bacteriology at discharge have not had confirmed continuing negative cultures in last two months.

berculosis suspects and cases results in an excellent initial medical response, is acceptable to hospital staff and patients alike, promotes continuity of care on hospital discharge and is economical to the state. This method of care utilizing short term hospitalization is dependent on a pre-established mechanism of long term out-patient supervision. A continuing evaluation of the medical results in patients so treated is being conducted.

STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
WILLIS E. BROWN, M.D., Professor, and Chairman
STACY R. STEPHENS, M.D., EDITOR

MYOMA OF THE UTERUS

John B. Nettles, M.D.,* Stacy R. Stephens, M.D.*

Uterine myomas are the most common tumors that occur in women. For unknown reasons their incidence in the colored race is much higher than among whites. These tumors are rarely present before puberty and are uncommonly symptomatic after the menopause.

Differential Diagnosis

Differential diagnosis of myomas can be divided into five main groups.

1. Adnexal Masses
2. Pregnancy
3. Adenomyosis
4. Uterine anomalies
5. Extragenital masses

The adnexal masses to be differentiated include those due to pelvic inflammatory disease, broad ligament myomas, and ovarian tumors. During pregnancy there is a problem of diagnosing whether or not this condition exists with the myoma, or whether the enlargement is due to pregnancy itself. Multiple pregnancy tends to give a uterus enlarged out of proportion to the expected duration of pregnancy. The same is true with hydatiform mole. In the patient with ectopic pregnancy, if the tube is bound to the uterus or implantation occurs in the interstitial or a portion of the tube adjacent to the uterus the diagnosis of myoma may be mistakenly made. During normal pregnancy the softening of the site of implantation may give a different consistency between this area and the rest of the uterus leading to a mistaken diagnosis of uterine myoma. A patient with adenomyosis may have a diffuse enlargment of the uterus or there may be adenomyomas which on pelvic examination cannot be differentiated from uterine myomas. A bicornuate uterus or a rudimentary horn of the uterus not uncommonly is first thought to be a uterine myoma. Extragential masses that cause confusion include pelvic kidney, bowel tumors, and tumors of the bladder. In addition to the above-named there can be tumors of any of the tissues of the pelvis. These include neuromas, fibromas, tumors of blood vessels, lipomas, and tumors of the lymph glands.

Lesions Commonly Associated With Myomas

Since myomas may occur in up to 40 per cent of women it is not uncommon for other lesions to coexist. Common associations are those of pelvic inflammatory disease and pregnancy. The latter may be intrauterine, ectopic, or abortion. Benign tumors that are frequently associated with myomas are endometrial and cervical polyps and ovarian cysts. Malignant tumors which not infrequently occur in association with uterine myomas are cervical and endometrial carcinoma. Endometriosis not only may accompany myomas but at times may simulate them. Endometrial hyperplasia is frequently found with myomas. Since most of the above-mentioned lesions can cause symtoms similar to those of myomas it is important that a complete and precise diagnosis be made in each instance and that symptoms which could be attributed to myomas or to some other coexisting lesion be investigated thoroughly.

Diagnostic Aids In Differential Diagnosis Of Myomas

Vaginal and rectovaginal examinations are simple and easy means by which enlargement of the uterus or adnexa can frequently be differentiated. If pregnancy can be ruled out, sounding the uterus will give information as to the depth and direction of the cavity and perhaps detect any irreg-

*4301 West Markham, Little Rock, Ark. 72205.

ularity which might be associated with a submucous myoma. Uterine curettage likewise can be helpful in the differential diagnosis. Exploration through the cul-de-sac can be done either by a colpotomy or culdoscopy. Culdoscopic examination is most valuable to those physicians whose practice produces few patients with extensive pelvic inflammatory disease or many patients with infertility problems. On the other hand in patients with pelvic inflammatory disease, colpotomy is much more easily done and is more practical for the differentiation of uterine myomas, ectopic pregnancies, and other adnexal lesions. Cytological and biopsy tissue study can be helpful in establishing whether or not a cancer exists. Helpful x-ray studies include the gynogram, flat plate of the abdomen, intravenous pyelogram, and pelvic tomograms. Pregnancy tests are quite useful in ruling out pregnancy. These tests now are available as simple office procedures. Most of the above diagnostic aids are of importance in establishing a diagnosis when they show postive signs of myomas. When the findings are negative they are of much less value and do not necessarily rule out the condition.

Management

Factors affecting management include the nature of any structural and functional changes secondary to the myomas, the presence or absence of pregnancy, the patient's desires as to future childbearing, coexisting conditions such as uterine hyperplasia, cancer, or polyps, and whether or not the patient has any symptoms at all. When the myomas are completely asymptomatic they are to be removed solely on the basis of size or location. The presence of uterine sarcoma is so low that this risk alone does not justify removal of the asymptomatic uterus. On the other hand when the tumors grow above the size of a fourteen to sixteen week pregnancy the likelihood of symptoms is sufficiently great to require their removal.

In patients whose myomas are small and asymptomatic and desire more children we prefer to defer surgery but to follow them with close observation. Those patients with solitary or multiple myomas who have a poor obstetric history may profit from myomectomy. The woman in whom there is no need to preserve the uterus, whose myomas are symptomatic, or whose future fertility is neither desirable nor possible is treated by an abdominal or vaginal hysterectomy. Abdominal hysterectomy is preferred where the myomas are large or where there is pelvic inflammatory disease. Vaginal hysterectomy is preferred in the hands of those who are adept at vaginal hysterectomy if the uterus is relatively small or can be morcellated with ease. On rare occasions bleeding secondary to myomas can be controlled by irradiation. This management is usually reserved for the patient who is an extremely poor operative risk and in whom bleeding has become a major problem. Endocrine therapy has but limited application in the treatment of myomas.

Management Based On Individual Conditions

1. Hemorrhage

Myomas are a frequent cause of menorrhagia due to increased size of the cavity or due to a submucous myoma which may delay regeneration of the endometrium or permit ulceration in this area. If the patient's hemoglobin or iron stores have not been depleted and the menstrual period is unduly prolonged, hemorrhage alone is probably not an indication for hysterectomy. On the other hand any troublesome hemorrhage should be controlled through one means or another. Very often hormonal therapy will not control the bleeding due to myomas associated with an enlarged uterine cavity. Bleeding between periods may be due to a myoma but other causes should be sought. All patients with abnormal bleeding should have a diagnostic curettage prior to hysterectomy in order that any coexisting cancer or other lesion can be adequately diagnosed. An example is the bleeding associated with a small myomatous uterus containing endometrial polyps. Hysterectomy may not be necessary in this instance.

2. Mass

Myomas may be submucous, intramural, or subserous, and may be located in the fundus or in the cervix. Cervical myomas of any great size are uncommon. Myomas may be pedunculated and if they prolapse through the cervix they should be removed prior to hysterectomy because of the great danger of infection from organisms which have been growing in the uterus.

3. Pressure

Pressure symptoms are common with myomas. These may vary from a vague sensation of pelvic heaviness to acute pressure symptoms. Intraligamentous myomas as they grow may include the ureter and produce urinary tract obstruction and infection. The bladder, urethra, or bowel

may be encroached upon. Not uncommonly, the trigone of the bladder may become distorted. A sudden falling of the fundus into the cul-de-sac may press the cervix and lower segment myomas against the urethra and produce a urinary obstruction. Uncommonly, myomas will cause the cervix to rise up and forward, and very often the cervix cannot be located. At times uretheral catheterization is difficult because of extrinsic pressure. Dysparunia may be caused by encroachment of the myomas upon the vaginal canal.

4. Infertility

Myomas are frequently associated with infertility although a number of patients with these tumors do become pregnant. A subserous myoma is unlikely to cause a problem. The greatest cause of infertility from myomas is the submucous variety. These predispose to edometrial bleeding and may distort the interstitial portion of the fallopian tube.

The management of uterine myomas in infertility patients is made difficult by not knowing whether the myomas are contributing to the patient's problem. If myomas are single and large or multiple, myomectomy should be considered if other factors do not account for the patient's infertility.

5. Obstetric Complications

Myomas tend to grow considerably during pregnancy and to regress postpartum. Carneous or red degeneration of uterine myomas almost always occurs during pregnancy. As the myoma grows there is occlusion of the venous return and engorgement of the blood vessels in the myoma with hemorrhage. If located in the true pelvis myomas may cause dystocia. Those found in the lower uterine segment early in pregnancy usually will thin out and rise with the fundus as the pregnancy advances. Myomas, especially submucous ones, predispose to abnormalitities of implantation including placenta accreta. They, or larger myomas may interfere with the growth of the pregnancy and may cause abortion. Malpresentation is common in patients with myomas as is postpartum hemorrhage. Myomas arising from the anterior uterine wall are subject to trauma through the thin abdominal wall of mid or late pregnancy.

In general the treatment of myomas in pregnancy should be conservative. If the symptoms are great, especially in the case of the pedunculated myoma, myomectomy is the procedure of choice. At times, removal of intramural myomas has been required. Pregnancy may continue even after this procedure. In patients with obstructed labor, myomectomy, cesarean section, or cesarean hysterectomy may be necessary.

6. Vascular Accidents

Blood supply to uterine myomas is quite poor. Acute vascular accidents as well as chronic changes are common. When a pedunculated subserous myoma becomes twisted, the omentum may come down to wall off the inflammatory process providing a second blood supply. As subsequent twists occur, the stalk may become necrotic and the myoma parasitic. Infection and necrosis may also occur.

7. Malignancy

Since myomas are quite common they not infrequently occur in patients who also have malignancies of the cervix, endometrium, or other organs. Sarcoma may arise within the uterus or may arise as an endometrial sarcoma. Presence of myomas may complicate management, especially radiation therapy, because of the difficulty of implantation of radioactive material against the cervix or endometrium.

8. Common Errors Associated With Management

Fortunately, myomas occur and give most of their difficulties in women who have already had their children and who do not desire to further preserve the uterus. On the other hand, a patient may later decide she would like children, and if the uterus has been removed this is an unfortunate situation. The removal of the uterus in a young woman, when myomectomy would have been practical, is one of the more common errors. Statistically, the commonest and most serious error is the failure to recognize such existing conditions as carcinoma or pregnancy. Another not infrequent error is the use of hysterectomy to treat a prolapsed myoma. The prolapsed myoma should be removed, the uterus be allowed to involute, and the infection be treated prior to hysterectomy. Very often, hysterectomy will not be necessary following this procedure.

Summary And Conclusions

From the foregoing can be seen that uterine myomas produce a wide variety of symptoms and form a large group of different anatomical variations. The management of the patient with myomas is not a casual one. Best management requires meticulous attention to all of the diagnostic and therapeutic possibilities.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 32 SEX: Male BUILD: Slender BLOOD PRESSURE: 110/70

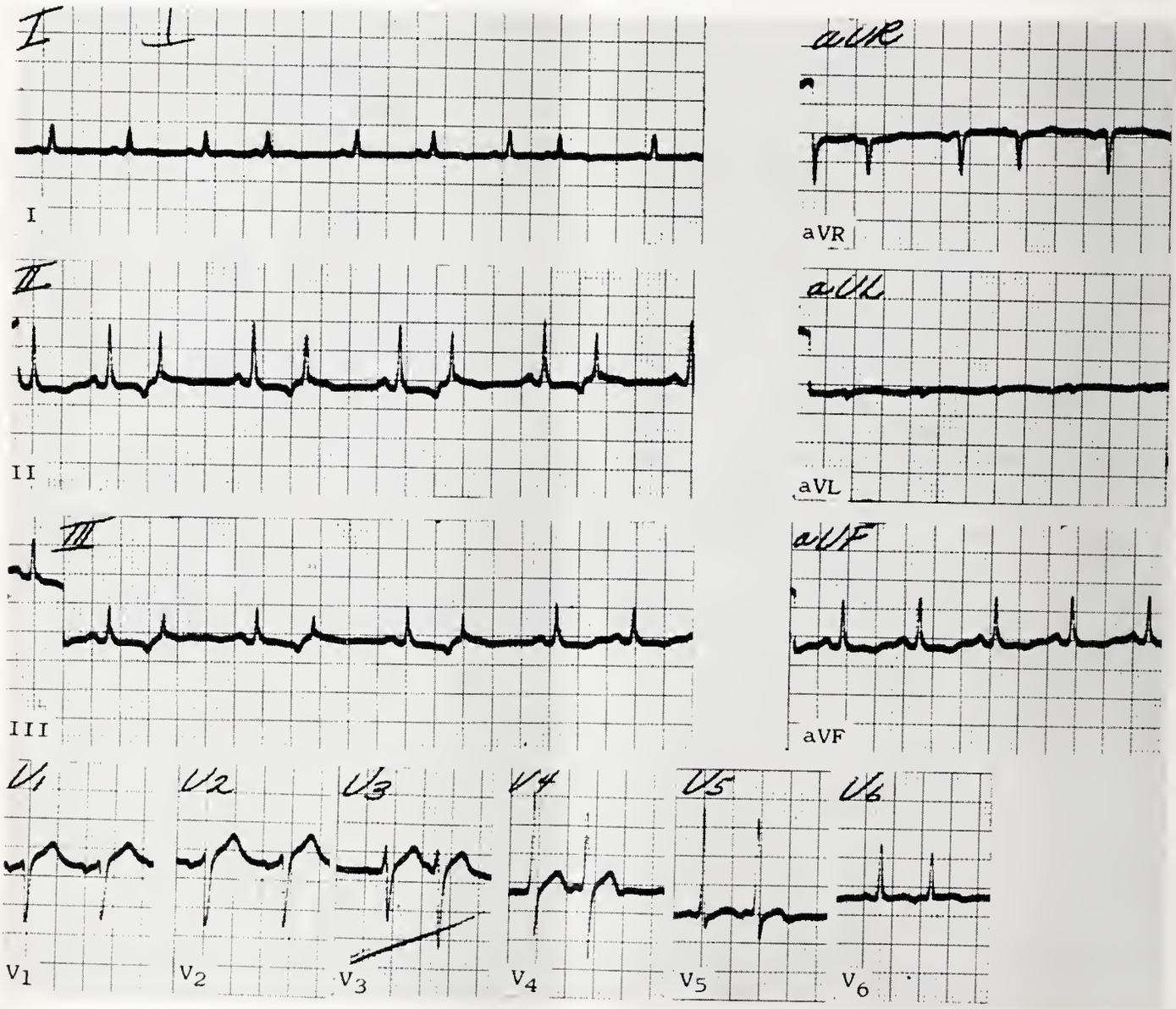
CARDIAC DIAGNOSIS: Undetermined

OTHER DIAGNOSES: Diabetic keto acidosis

MEDICATION: No cardiac medication

HISTORY: Recent nausea, vomiting; semi-comatose

See Answer on Page 70



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

PH

PUBLIC HEALTH AT A GLANCE

Measles Eradication in Arkansas

One of the most common and miserable diseases known to children—red measles—is being eradicated in Arkansas and across the nation. Thanks to the marketing of an effective rubeola vaccine and the joint efforts of private and public medicine, the number of measles susceptible children in Arkansas has been reduced approximately 50 per cent during the past three years.

During 1967 1,404 cases of rubeola were reported to the Arkansas State Health Department by private physicians. It is interesting to note that most of these cases were reported during the spring months when measles generally peaks, and that no cases were reported during the final six months of the year.

In January, 1967, the Arkansas State Health Department (Immunization Division) launched a series of county-wide mass measles campaigns at the request of local county officials. Each campaign has had support from this group, as well as school officials, and total endorsement from the local county medical society. Using jet-injector guns, which enable the operator to immunize up to 500 children per hour, a total of 60,000 children, of pre-school and school age, have been given measles shots in 35 counties of Arkansas' 75 counties (46%). Those counties that have completed campaigns are reflected on the attached map.

At the time of this writing, additional campaigns are planned for Miller, Desha, and Hempstead counties.

Following approval of the county medical society, Immunization personnel from the Arkansas State Health Department work closely with local physicians, civic groups, and school authorities to plan, organize, and publicize the campaigns. They are generally one day programs and have been staged on both Sundays and week-days (when school is in session). The number of shots administered during the campaigns has varied, the highest has been Pulaski, followed by Crittenden and Phillips counties.

Schwarz strain measles vaccine is available to physicians on request through the state and county health departments for the immunization of pre-school age children. During previous campaigns vaccine for other than pre-school age children has been purchased by the county medical society, local civic authorities, schools, or paid for by the parents. Of course, it is felt that most measles susceptible children in Arkansas today are from lower socio-economic groups and mass measles campaign publicity has been directed toward this group.

Another interesting event regarding measles in Arkansas was the passing of Act 244 by the 1967 Arkansas Legislature. This law mandated that "No child shall be admitted to a public or private school of this State who has not been immunized from poliomyelitis, diphtheria, tetanus, pertussis, and red measles, as evidenced by a certificate of a licensed physician, or public health department, acknowledging same."

Current available data indicates that approxi-

MEASLES CAMPAIGNS

mately 53,000 Arkansas children remain susceptible to measles.

The Surgeon General of the U. S. Public Health Service, Dr. William H. Stewart, the American Medical Association, the Academy of Pediatrics, and other authorities have outlined a four-point program for the eradication of measles as follows:

1. Routine immunization of all children when they are 1-year old. Nearly all health departments have measles vaccine available for those who cannot afford it.
2. Immunization of any susceptible children found in kindergartens, first and second grades.
3. The development of improved reporting systems for finding out when and where measles cases occur, so more effective control measures can be designed.
4. The stopping of epidemics where not enough children have been vaccinated by launching crash immunization programs. Epidemics of measles need no longer be tolerated in the United States.

It is felt that Arkansas is complying with these points at the present time, and hopefully, continued emphasis toward early immunization against rubeola by physicians and public health authorities will soon result in complete decline of this notorious childhood disease.

The State Health Department urges those counties that have not yet had mass measles campaigns to contact the Immunization Activities office at the earliest convenience so that plans for a campaign may be initiated.

Retinal Changes in Glycogen Storage Disease Type I

R. N. Fine, W. A. Wilson, and G. N. Donnell (Childrens Hosp of Los Angeles, 4614 Sunset Blvd, Los Angeles)

Amer J Dis Child 115:328-331 (March) 1968

Five patients (case 1, a 20-year-old man; case 2, a 17-year-old girl; case 3, a 14-year-old girl; case 4, a 13-year-old boy; case 5, a 12-year-old boy) underwent ophthalmoscopic examination. Cases 2, 3, and 4 had multiple bilateral, symmetrical, yellowish, non-elevated, discrete para-macular lesions. The media were clear on biomicroscopic examination. Blood vessels and optic discs appeared normal and no lesions were noted in the periphery of the fundus. Changes were most striking in case 4. Similar, but less striking findings were observed in case 2 and 3. Ophthalmoscopic examinations of case 1 and 5 revealed no abnormalities. Retinal changes did not adversely affect vision.

Using ^{133}Xe and Scintillation Camera to Evaluate Pulmonary Function

M. K. Loken and H. D. Westgate (Univ of Minnesota Hosp, Minneapolis)

J Nucl Med 9:45-50 (Feb) 1968

Pulmonary function studies were made on 51 patients using either or both the inhalation and intravenous techniques for ^{133}Xe administration. Studies of normals show that the curves obtained after inhalation are quite similar to those obtained after xenon injection. The slower components are more evident after xenon inhalation than after xenon injection. ^{133}Xe was used to study patients with a variety of pulmonary disorders including scoliosis, asthma, emphysema, lung carcinoma, cystic fibrosis, hemosiderosis, farmer's lung, and various forms of cardiac disease. Conventional pulmonary function studies were also performed on these patients. Preliminary correlative analyses of data have shown good agreement among these methods.

EDITORIAL

Appropriate Education for Paramedical Students

Alfred Kahn, Jr., M. D.

In the days of the so called manpower shortage, the efficient utilization of personnel is similar to conserving natural resources. Actually, manpower is a resource, and in the U.S.A., we are squandering it—or at least not making the best use of manpower in the paramedical training area. A student in medical technology or radiologic technology or nursing technology should be neither over nor undermined.

Leadership in developing appropriate programs has been abdicated by organized medicine, although there is adequate liaison between the medical profession and the organized para-medical groups. The medical profession should make an effort to have a comprehensive organized program of education since these para-medical groups are so essential to the national health programs.

Specifically, the greatest failure currently is the manifested desire to "overtrain-for-the-job-required" a large group of people; saying this a different way, there ought to be grades of competence in the three fields under discussion. This is present to a certain degree but it has not been formalized. If the backbone of American medicine is to be the private practitioner, then he will have to have an office in which to practice. For appropriate practice, the general physican needs a laboratory technologist who can perform blood counts, urinalyses, blood sugars, and simple blood chemistries, etc; it would be wasteful of education for him to have a graduate of our current medical technology courses. He simply needs competence in a limited field which an intelligent high school graduate can master in a few months. Next in order of competence is the technologist needed in an internist's office; she needs to know more tests and procedures but she does not need to know how to perform rare tests, unusual tests, time consuming tests, hormone assays, etc; these difficult tests should be farmed out to a big hospital laboratory or a clinical pathologist. The highest grade of technological training should be the technologist who can perform unusual uncommon tests in a hospital or chemistry laboratory. Each grade of technologist should be equally competent in the tests which she performs but the more advanced grades can perform more tests, etc.

The same is true of radiology. General physicians in small communities have to use x-ray machines to determine fractures, frank pneumonia, etc.; they are not interested in urea washout intravenous pyelograms, the use of radio-active materials, etc. Why not train some radiologic technologists for general physicians? Why not train the technologists to a little greater competence for gastro-enterologists and urologists, etc? Finally, why not train some technologists for the hospital department of radiology for the performance of the whole spectrum of radiologic work?

Nurses training has been badly geared to the medical public and the needs of the medical profession. Again, we need levels of competence. There ought to be trainees from six months courses to master degrees in nursing. The three year hospital nurses, "R.N.", training program ought to be preserved; the reasons for this are well outlined by Thomas Hale in an article entitled "Cliche's In Nursing Education" published in The New England Journal of Medicine, vol. 278, p. 879, Apr. 18, 1968.

The whole point here is that although there may exist some schools which represent varying degrees of training competence, the system is so poorly integrated and so misunderstood, the true value of an organized program has been missed.

The medical profession should exert leadership in this field and clearly label the intent of the different programs; if necessary, select some new names for their graduates which will carry some distinctive designation. Furthermore, through appropriate organizational set-up in hospitals, realistic training programs should be set up to train large numbers of graduates for the jobs requiring lesser competence and small schools organized for the small number of highly trained graduates. This system can be set up to allow both vertical and horizontal advancement for the graduate, who is ambitious for higher goals.

As the program now stands, private physicians compete with hospitals for technologists and nurses trained to a competence which is most often beyond the needs of his office practice. The hospital is then depleted of essential personnel and ultimately the health program of the community suffers. On the other hand, if there were a coordinated program of para-medical education, larger numbers of appropriately trained personnel could be graduated and probably in such numbers as to take care of both office and hospital practice. The hospitals, under their physicians' guidance, should take steps to train personnel of all degrees of competence to protect their own departments.

The Extremes of Growth

Alfred Kahn, Jr., M. D.

The extremes of growth in children are extremely disruptive to the child psychologically as well as physically—and, also, to the parents.

The problem of decreased height is a very important side effect in children being treated with adrenal steroid drugs over a prolonged period, as in ulcerative colitis, severe allergies, etc. Morris, Jorgensen and Jenkins[1] have studied this problem by actually measuring plasma growth hormone concentration in corticosteroid treated children. They studied 33 asthmatic children; 10 children had not had adrenal steroid administration, whereas 23 children had received adrenal steroid medication; the former group were used as controls. Blood samples were taken appropriately to measure blood sugars and human growth hormone; the patients were given crystalline insulin intravenously in a dose of 0.1 unit per kilo of body weight as a provocative test. The results of these studies showed that both the control group of children who had no adrenal corticosteroid and the children treated with adrenal corticosteroids had similar levels of growth hormone. Furthermore, not alone was the fasting growth hormone level in the two groups similar, but the level after insulin induced hypoglycemia was similar. The normal growth hormone response has been reported in children with retarded growth in other non-pituitary dwarf like states. The authors point out another interesting fact noted in these studies, namely, that children have a much higher resting growth hormone study than adults, and show a smaller response to hypoglycemia.

Morris, Jorgensen, Elrick, and Goldsmith[2] in a companion article to the above have reported on "The Metabolic Effects of Human Growth Hormone In Corticosteroid Treated Children". This study was aimed at determining the results of human growth hormone administrated intramuscularly to children with retarded growth due to administration of long term adrenal corticosteroids. The studies were made on eight prepubertal children receiving adrenal corticosteroids and compared to two children with panhypopituitarism who received no corticosteriods. The studies included assays of the patients calcium, phosphate, sodium, potassium, and nitrogen. The children were weighed weekly and their height was measured weekly. In normal humans, studies with human growth hormone have demonstrated retention of nitrogen, potassium, and phosphorous; these, of course, are the building blocks of the body. In this study, the children who were hypopituitary dwarfs showed the normal response with a marked degree of sensitivity.

1. Journal of Clinical Investigation, Vol. 47, p. 427, March 1968.

In contrast, the children who were treated with adrenal steroids showed only very small amounts of nitrogen retention and no phosphorous retention; the latter is said to be the best index of metabolic activity. It is of further interest that the absorption of calcium and phosphorous from the gut was actually decreased in steroid treated children to whom human growth hormone was administered. The authors postulate that the antagonism of growth hormone and adrenal corticosteroids is in the periphery of the body; it is not an interference with the release mechanism by the endocrine glands.

In a leter to The Editor of The Journal of Clinical Endocrinology (Vol. 28, p. 416, March 1968), Frasier and Smith discuss the effects of estrogens on the mature height of tall girls. In as much as girls and their mothers are sensitive about the possibility of excessive height, considerable research has gone into attempts to inhibit growth in the potential tall girl. These authors followed 22 girls who were observed until they attained their mature height. 5 girls served as controls. 17 girls received estrogen therapy to try and inhibit height. All of the girls were above the predicted height for their age, and, based on this, the prediction of their mature height would indicate excessive height by current "social" standards. It was the authors' conclusion that cylic premarin in dosages of from 2.5 mg. to 10 mg. per day was of no benefit. They felt that for estrogen therapy to be effective it would have to be administered before a bone age of 12.5 years and in very large dosages, otherwise, there will be no clinical benefit.

Extremes of height are deleterious to the maturing individual, and they should be controlled where possible.

2. Journal of Clinical Investigation, Vol. 47, p. 436, March 1968.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D. C.—The American Medical Association stated that the regional medical programs had showed good progress in the early stages but urged that Congress order an early evaluation by non-government agency.

The AMA position was outlined by Bland W. Cannon, MD, of Memphis, Tenn., a member of the Association Council on Medical Education, in testimony before the House Subcommittee on Public Health and Welfare. The subcommittee was considering Administration legislation to extend the regional medical program law for five years.

Subcommittee members reacted favorably to an AMA recommendation that the extension be for only three years. Some of the congressmen also indicated opposition to a recommendation by Michael DeBakey, MD, of Houston, Tex., that appropriations for the regional medical programs be increased sharply.

"We view with favor the early progress of RMP, its ability to build on existing patterns of medical care (sometimes adding new features or changing old ones as local demands and resources make possible) and the local flexibility which allows the program to make a real contribution to the health care of our nation," Dr. Cannon said. "At the same time, we recognize that the concept of the Regional Medical Pdogram is still in its very early stage of existence and that it is difficult to fully appraise the program. We do not know, for example, how much this program adds to the stress on an already overtaxed supply of available medical manpower.

"There is some concern that the proliferation of federal health programs substantially contributes to the rise in health care costs. For this

reason, we are pleased that H.R. 15758 provides for an evaluation of the program. We would suggest, however, that the evaluation begin July 1, 1968, rather than July 1, 1969, since 'evaluation' should be an integral part of the planning. We also suggest that the subcommittee consider further amending Section 102 to provide that the evaluation shall be made by a non-government agency. . .

"We recommend that the subcommittee delete the open-end authorization for funds for the four fiscal years ending after June 30, 1969. In view of the fact that we are still dealing with a relatively untried program, we believe it would be wise to limit the authorization to such sums as this subcommittee may determine to be reasonable, rather than to provide for 'such sums as may be necessary for the next four fiscal years.' "

Henry Brill, MD, of Brentwood, N. Y., chairman of the AMA's Committee on Alcoholism and Drug Dependence, said that the AMA supported the part of the legislation authorizing federal grants for construction of facilities for a new program for alcoholic and narcotic addict rehabilitation.

"However," he said, "we have long felt that funds for staffing and operation are properly the responsibility of the community, once the major burden of construction has been met with federal assistance."

* * * * *

The American Medical Association and the Association of American Medical Colleges announced a joint policy designed to increase the number of medical students.

The statement "emphasized the urgent and critical need for more physicians if national expectations for health services are to be realized," and listed immediate and long-range steps that should be taken.

Immediate steps:—

1. Increase the enrollment of existing medical schools.

2. Foster curricular innovations and other changes in the educational programs which could shorten the time required for a medical education and minimize the costs.

3. Meet the need for innovation in educational programs and to encourage diversity in the character and objectives of medical schools. The development of schools of quality where a primary mission is the preparation of able physicians for clinical practice as economically and rapidly as possible is to be encouraged.

"A longer-range approach to the need for physicians is the development of new medical schools," the statement said. "This approach will not solve our immediate, urgent need for more physicians but it is essential for meeting the national needs of 1980 and beyond.

"To implement the measure enumerated above will require adequate financial support from governmental and various private sources for:—

"1. Construction of facilities to expand enrollment of existing schools and to create new schools.

"2. Support of the operational costs of medical schools.

"3. Stimulation and incentive for educational innovation and improvement."

* * * * *

Wilbur J. Cohen, a key proponent of medicare, was named by President Johnson to succed John W. Gardner as secretary of Health, Education and Welfare.

Cohen, now 54, started with the federal government in the early thirties and helped draft the social security program. Recognized by Congress as an expert on social security, he was the leading architect of medicare and played a prominent role in getting Congressional approval of the program.

He had been undersecretary of HEW since June, 1965. For the previous four years, he had been assistant secretary of HEW.

At a news conference following his appointment to the top HEW post, Cohen foresaw health care accounting for as much as 50 percent of total welfare costs. He urged that voluntary private health insurance be improved. But he said that he did not believe private programs could be improved sufficiently to eliminate the need for government help in dealing with the health care needs of low income groups and the disabled.

"Medicare and medicaid have had some impact on higher medical costs," Cohen said. "But I think doctors' cost are going to taper off. Hospital costs are going to continue to rise but there is a problem of antiquated and inefficient methods. This can be changed."

Soon after Gardner's resignation became effective, Cohen announced major steps in the reorganization of HEW's health activities. Unified direction of HEW's major health agencies was assigned to Dr. Philip R. Lee, Assitant Secretary

for Health and Scientific Affairs. Dr. William H. Stewart, Surgeon General of the Public Health Service, was named principal deputy to Dr. Lee.

Dr. Lee was given direct authority over the Public Health Service and the Food and Drug Administration. Dr. Stewart and Food and Drug Commissioner James L. Goddard, MD, will report directly to the Assistant Secretary, while continuing to carry out their present administrative functions.

Dr. Lee's responsibility also was expanded to include overall health policy direction and coordination of other health programs, including medicare, medicaid and the health activities of the children's bureau.

In his 1968 message to Congress, President Johnson had directed the HEW secretary to submit "a modern plan of organization to achieve the most efficient and economical operation of the health programs of the federal government."

"In the past four years," Cohen said, "31 major new laws have been enacted that increase the Department's authority, responsibility and appropriations in the field of health.

"The total federal investment in health has grown from approximately $3 billion in 1960 to nearly $14 billion in 1968, and $16 billion proposed in 1969. Because of new programs, like medicare and medicaid, the HEW health investment alone has more than tripled in the past three years, from $2.6 billion in 1966 to $9.6 billion this fiscal year, and $10.9 billion proposed for 1969."

In a reassignment of agency responsibilities, the National Institutes of Health was expanded to include the present NIH, the Bureau of Health Manpower and the National Library of Medicine. The Health Services and Mental Health Administration was set up with responsibility for all other functions previously assigned to the Public Health Service. These two new agencies, along with the present Food and Drug Administration now make up an expanded and more comprehensive Public Health Service.

Dr. James A. Shannon, Director of the National Institutes of Health, was named Director of the newly constituted NIH. Dr. Robert Q. Marston, Director of the Division of Regional Medical Programs, was named Acting Administrator of the Health Services and Mental Health Administration. Dr. Goddard continues as Commissioner of Food and Drugs. The heads of these three agencies will report directly to Dr. Lee under the new organizational setup.

Trends In Characteristics of MCAT Examinee Population, 1962-1967

Although there has been a marked increase in the total number of individuals per year taking the Medical College Admission Test (MCAT) from 1962-67, most characteristics of the examinees remain relatively constant. For example, there has been no significant change in the ratio of 9 male examinees for every 1 female. Similarly, examinee groupings by college status at the time of taking the test have ranged consistently from 4 to 6 per cent for sophomores, 43 to 47 per cent for juniors, 31 to 36 percent for seniors and 15 to 17 per cent for those holding graduate degrees. Likewise the 1967 distribution by geographic region of residence of the examinees, as shown in Figure 1, can be considered representative for any of the past six years.

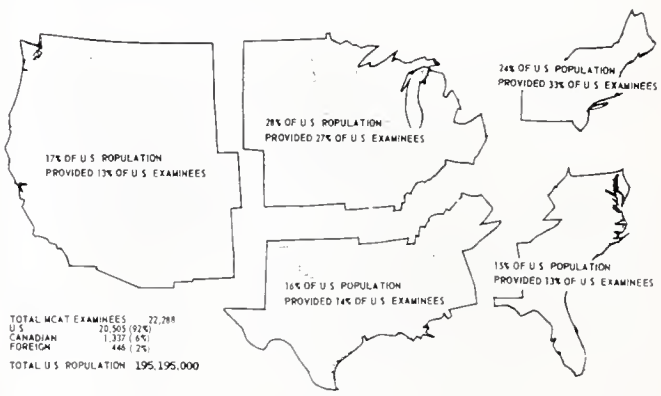


Figure 1
Comparison of Geographic Distribution of 1967 MCAT Examinees and of 1966 U. S. Population.

Source: Population figures from *JAMA* Education Number, Nov. 20, 1967, p. 812. Regional grouping based on the *MCAT Handbook*, 2nd Edition, 1967, p. A9.

When students are grouped by their undergraduate college major, however, significant changes in their choice of curricula can be seen (Figure 2). The noticeable decrease of 7 per cent in the "premedical" major category plus a 2 per cent decrease in the humanities and a 3 per cent decrease in the "other major" category has been counterbalanced by an increase of 10 per cent in the biological sciences and 2 per cent in the "physical sciences (including chemistry) and mathematics" majors. These changes are consistent with a general trend toward encouraging medical school applicants to select majors requiring some depth of learning in a given discipline rather than taking what is often a somewhat more

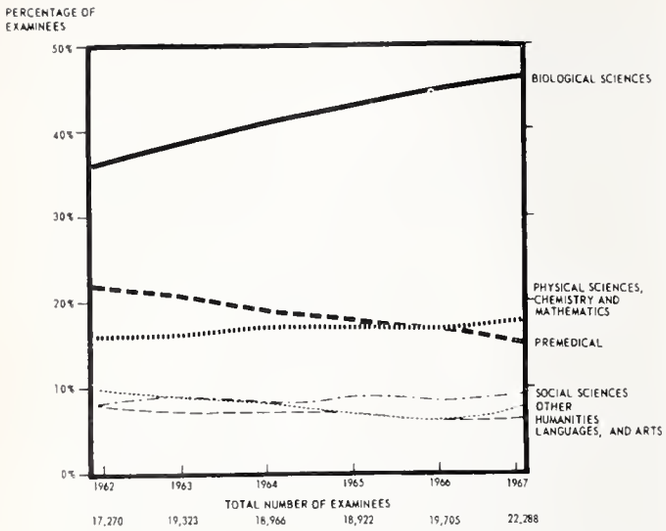


FIGURE 2
Trends in Undergraduate College Major and in Total Number of MCAT Examinees, 1962-1967.

Source: 1967 Summary of MCAT Score Distributions prepared by The Psychological Corporation.

diffused "premedical" major. However, all prospective medical students are encouraged to obtain a basic background in both the science and the nonscience liberal arts.

Another notable trend, indicated at the bottom of Figure 2, is a marked increase in the total number of examinees. Their number rose 14 per cent from 1962 to 1963, decreased 2 per cent in 1964, remained essentially unchanged in 1965, increased 4 per cent in 1966, and rose 13 per cent in 1967. Overall, the total number of MCAT examinees per year increased by 5,018 or 29 per cent during the period from 1962 to 1967.

ANSWER—Electrocardiogram of the Month

RATE: 120 RHYTHM: Sinus tachycardia with atrial bigeminy in much of tracing.

P-R: 0.14 sec. QRS: .08 sec. Q-T: 0.32 sec.
SIGNIFICANT ABNORMALITIES:

Through much of the tracing there is noted an atrial premature systole following each sinus beat. The direction of the abnormal P wave and P-R interval suggest origin near the coronary sinus.

INTERPRETATION: Abnormal

Frequent atrial premature systoles at times appearing in bigeminal form.

According to the 1966-67 Education Number of the *JAMA*, the estimated number of first-year places available in the 1968-69 entering class is 9,467. If all 22,288 of the 1967 MCAT examinees should apply, this would result in slightly more than 2 applicants per place. For the 1966 entering class there were 18,250 applicants and 9,123 acceptances or exactly 2 applicants per acceptance.

Submitted by the Divisions of Student Affairs and of Educational Measurement and Research.

ADVISORY COMMITTEE APPOINTED

Seven physicians have been appointed to a Society Advisory Committee to the State Prison Board. Dr. T. E. Townsend of Pine Bluff announced that the seven committee members will be Dr. Joseph B. Scruggs, Little Rock; Dr. Wayne Lazenby, Dumas; Dr. Walter S. Wilkins, Pine Bluff; Dr. T. J. Smith, Little Rock; Dr. W. O. Young, Little Rock; Dr. Paul Henley, El Dorado; and Dr. Howard Schwander, Little Rock. The purpose of the committee is to assist the officials of the Arkansas penal system in improving the health care of inmates.

THINGS TO COME

COOPERATION URGED FOR STUDY OF PEDIATRIC DISORDER

The cooperation of physicians has been requested in a study concerning "tracheostomy addiction" in infants and children. Our group at the Children's Memorial Hospital will appreciate the opportunity of seeing patients who have had at least one unsuccessful decannulation attempt. The study is being carried out by the Departments of Pediatrics and Otorhinolaryngology at the Children's Memorial Hospital, University of Oklahoma Medical Center. Arrangements for hospitalization without cost to the family can be made. Physicians interested in having such patients be considered for this study may contact:

Dr. Logan Wright
Children's Memorial Hospital
University of Oklahoma Medical Center
800 N. E. 13th Street
Oklahoma City, Oklahoma 73104
Telephone: CE 6-1366, Ext. 670

PERSONAL AND NEWS ITEMS

Dr. Gay Takes Board Examination

Dr. Ellery C. Gay, Jr., of Little Rock recently passed the examination for the American Board of Otolaryngology.

Dr. Capes Elected Director-At-Large

Dr. Bernard Capes of West Helena was elected director-at-large of the Arkansas Tuberculosis and Respiratory Disease Association Board. The election was held during the 60th Annual Meeting of the Association in Hot Springs during the month of April.

Dr. Hayden Speaks in Denver

Dr. William Floyd Hayden of Little Rock addressed the Southwest Surgical Congress in Denver, Colorado in April. He spoke on "Surgery for Duodenal Ulcer".

Doctor To Practice In Morocco

Dr. James Austin Capps, Jr., of Gurdon left in April to practice in a 35-bed hospital on the United States Naval Base in Kenitra, Morocco. He has been assisting Dr. R. H. Nunnally in Gurdon and Dr. A. M. Bradley in Forrest City.

Doctors Speak At Conference

Dr. Francis Henderson of Pine Bluff spoke at a dinner meeting opening the Arkansas Conference on Physicians and Schools. Dr. Ralph Wooley of Pine Bluff also spoke at the meeting with a talk on "Medical Aspects of School Health". The Conference, held at the State College of Arkansas in Conway, was sponsored by the Society's Committee on Physical Fitness and School Health.

Dr. Manley Studying Cardiology

Dr. Robert H. Manley of Clarksville has been studying cardiology at the Scripps Clinic and Foundation in LaJolla, California, and has also received training in open heart surgery in Houston under Dr. Denton Cooley, Dr. Grady Hallman and Dr. Michael DeBakey. He was one of 18 doctors chosen to study cardiology at the Foundation under Dr. E. Grey Dimond.

Doctors Elected to AAGP

Dr. Jack R. Martin of Siloam Springs has been elected to active membership in the American Academy of General Practice. Dr. Jack M. Sheppard of El Dorado has been re-elected to active membership in the Academy.

Dr. Allen Spoke On Heart Disease

The Malvern Business and Professional Women's Club had Dr. John E. Allen, Jr., of Little Rock to speak at their April 23 meeting. The meeting was open to the public and Dr. Allen spoke on "The Heart-Coronary Artery Disease".

Senior Medical Banquet Held

Dr. Joseph A. Norton of Little Rock presided at a banquet sponsored by the Arkansas Medical Society and the Arkansas Academy of General Practice for the senior medical students of the University of Arkansas School of Medicine. The banquet was held in Little Rock on April 19. Dr. Ernest B. Howard, assistant executive vice president of the American Medical Association, was guest speaker.

Dr. Bailey Witnesses Tornado

Dr. Charles Bailey of Greenwood, Arkansas, was involved with the tornado that struck Greenwood in mid-April. He was visiting a rest home when it struck. He described the town as being in a state of mass confusion with many injured and only rubble and debris where once buildings had stood.

Dr. McKnight Honored

Dr. E. D. McKnight of Brinkley was honored with a party at his office on March 30 for his 64 years of service to the community.

Dr. Linton Honored

Dr. A. C. Linton of Hector was honored for his 61 years of service to the community in observance of Doctor's Day on March 30.

Doctors Participate in Medical Assistants' Convention

Dr. James A. Brown of Fort Smith spoke on "Neurosurgery", Dr. E. E. Clemmons of Fort Smith spoke on "Heart Transplant", and Dr. Jefferson E. White, III, of Fort Smith spoke on "Endocrinology" at the Arkansas State Medical Assistant Society Convention in Fort Smith. Also participating in the program were Dr. Carl L. Williams, Dr. A. C. Bradford, and Dr. Franklin

M. Lockwood, all of Fort Smith. The Convention was held on May 4 and 5 at the Fort Smith Municipal Auditorium and at the Ward Motor Hotel.

Dr. Hard Addresses Rotary Club

Dr. John Hard of Blytheville spoke at the April meeting of the Blytheville Rotary Club. He discussed the National Institute of Health project which will provide funds for new equipment, training of personnel and intensified communication between hospitals and large medical centers.

Dr. Steele Elected Chief of Staff

Dr. William L. Steele of Little Rock was elected the Chief of Staff at Arkansas Children's Hospital.

Dr. Lowrey New Chief of Staff

Dr. Douglas H. Lowrey of Russellville has been elected Chief of Staff of St. Mary's Hospital in Russellville.

Staff Elected at Union Memorial Hospital

Dr. W. S. Rainwater is the new Chief of Staff of the Union Memorial Hospital in El Dorado. Dr. Dorothy Sample was elected as Vice Chief, Dr. James Rud was elected as Secretary, Dr. Henry Rogers, Dr. H. J. Mayfield, and Dr. C. E. Tommey were elected to the executive committee. Dr. George Warren is the outgoing Chief of Staff. All are from El Dorado.

Dr. J. B. Futrell Day Held

The citizens of Rector honored Dr. J. B. Futrell on May 6 in appreciation for his years of service to the community. The community is establishing an Athletic Scholarship fund in his honor at the University of Arkansas.

Hospital Auxiliary Honors Doctors

The Hospital Auxiliary in Morrilton sponsored a coffee hour in observance of Doctor's Day on March 30. Honored were Dr. Clifford Evans, Dr. Charles Wells, and Dr. Gastor B. Owens.

Speakers Bureau Participants

The following physicians have recently represented the Speakers Bureau of the Arkansas Medical Society: Dr. John Broadwater of Fort Smith spoke on "Rays of Hope" in Fort Smith on April 25th at a meeting of the Para-Medical Club at Northside High. Dr. James Stalker of Batesville spoke on "Exercise and Long Life" at a meeting of the Melbourne Lions Club in Melbourne on May 6. Dr. T. A. Field of Fort Smith spoke on "Bane of Youth (Acne)" at a meeting of the Para-Medical Club on May 8th at Northside High in Fort Smith. Dr. Hal S. Barre of Pocahontas spoke on "Protect Your Health with Preventive Care" at a meeting of the Home Demonstration Club at the Municipal Building in Ravenden, Arkansas, on May 10th. Dr. Joe Verser of Harrisburg gave a talk on "The Years After Forty" at a meeting of the Lepanto Lions Club in Lepanto on May 21st. Dr. A. C. Bradford of Fort Smith gave a talk entitled "What Skin Shows" on May 14th to the Danville B.P. and W. in Danville. Dr. Charles A. Taylor of Batesville spoke on "New Drugs: Blessings and Dangers" at a meeting of the Independence County Extension Homemakers at the Batesville Fairgrounds on May 17th. Dr. H. C. Palmer of Searcy gave a talk on "Exercise and Long Life" to the Beebe Lions Club on May 27th in Beebe. Dr. M. E. Blanton of Jonesboro spoke on "Glaucoma" at a meeting in Paragould on June 3rd. On June 9th, Dr. Joe Verser of Harrisburg spoke at a District Meeting of the First Christian Church on "Medicine in a Socialized Society" in West Memphis.

PROCEEDINGS OF SOCIETIES

Washington County Medical Society

The Washington County Medical Society met in April with Mr. Robert Etheridge, a field representative of the American Medical Association, in the Department of Medicine and Religion, as guest speaker. He discussed the problems confronting physicians and clergymen and urged a closer relationship between the two professions.

Washington County Medical Society Sponsors Measles Innoculation Clinic

A county-wide mass measles innoculation clinic was held on April 28 and 29 in Washington

County. There was no charge for pre-school children and a charge of $1.25 for school-age children. Approximately 730 school-age children and 374 pre-school children received the vaccine throughout the county.

NEW MEMBERS

DR. GEORGE R. COLE, JR., is a new member of the Washington County Medical Society. He is currently practicing obstetrics and gynecology with an office in Colonial Village, Fayetteville. Prior to entering private practice in Fayetteville, he held a position as an instructor in the Department of Obstetrics and Gynecology at the University of Arkansas School of Medicine. Dr. Cole served in the United States Air Force from 1962 until 1964. He completed his internship and residency at the University of Arkansas Medical Center. He attended the University of Arkansas for his pre-medical education and then he attended the University of Arkansas School of Medicine from which he graduated in 1961. He is a Junior Fellow of the American College of Obstetricians and Gynecologists and is a member of the American Fertility Society. He was born in Fayetteville in 1936.

Washington County Medical Society has also added DR. TOM WHITING to the roster. Dr. Whiting was born in Gillett, Arkansas in 1937. He attended the University of Arkansas and Arkansas A&M for his pre-medical education and received his degree in medicine in 1964 from the University of Arkansas School of Medicine. He interned at the Wesley Medical Center in Wichita, Kansas, and also spent two years in residency in general practice there. He has been a member of the National Guard for nine years. He is currently in general practice with an office in the Edmondson Clinic, Springdale.

Another new member of the Washington County Medical Society is DR. HUGH B. HIGGINBOTHAM. Dr. Higginbotham was born in 1931 in Senath, Missouri. He attended the University of Missouri and graduated in 1956 with an A.B. degree. The following year he received an M.S. degree in Microbiology. He also attended the University of Missouri School of Medicine, graduating in 1961 with his degree in medicine. He spent his internship at the St. Luke's Hospital in St. Louis and then returned to the University of Missouri School of Medicine for his residency. He received a Fellowship in Cardiology at Barnes Hospital and St. Luke's Hospital in St. Louis. As Chief of Cardiology at the General Leonard Wood Army Hospital, he spent two years in active duty with the United States Armed Forces. After completing his military obligation, he began his private practice in Fayetteville in July of 1967. He specializes in internal medicine and is associated with the Diagnostic Clinic in Fayetteville.

Washington County Medical Society announces DR. JUDITH RYDER COWAN as a new member. She is a native Oklahoman, having been born in Oklahoma City in 1931. She attended the University of Oklahoma and received a B.A. degree in 1953. She was graduated from the University of Oklahoma School of Medicine in 1958. She interned at the John Sealy Hospital in Galveston, Texas. Dr. Cowan returned to the University of Oklahoma Hospital for her residency in Psychiatry. After completing her residency, she began practice at the Veteran's Administration Hospital in Oklahoma City. In 1963, she accepted a position with the Tulane University Student Health Service. She held positions as an instructor in Psychiatry from 1962-1963 at the University of Oklahoma School of Medicine and from 1963-1966 at the Tulane University School of Medicine. She is a member of the American Psychiatric Association and of the American College Health Association. She is presently practicing psychiatry at the University of Arkansas Student Health Service in Fayetteville.

DR. JOHN E. DORMAN is also a new member of the Washington County Medical Society. He is a native of Birmingham, Alabama, and was born in 1938. He attended the University of Oklahoma for his B.S. degree and also the University of Arkansas. He received his medical education at the University of Tennessee School of Medicine and graduated in 1962. He interned at the St. Thomas Hospital in Nashville, Tennessee. He spent three years as a resident in gen-

eral surgery at the Charity Hospital in New Orleans. He has spent four and one-half years in the active military reserve. He held a position as Clinic Instructor in Surgery at the Louisiana State University School of Medicine in New Orleans. He is practicing general medicine and surgery with an office at 1203 Sunset Avenue, Springdale.

Craighead-Poinsett County

The Woman's Auxiliary of the Craighead-Poinsett County Medical Society observed Doctor's Day with a buffet dinner of Polynesian food. At their April meeting, plans were made to hold a Spring Luncheon on May 15th at the home of Mrs. Eldon Caffery in Jonesboro. June 29th was announced as the date of the Auxiliary's benefit Horse Show. Proceeds will go to Abilities Unlimited and the show is to be held at the Fairgrounds Arena.

Ph¹-Disomy and Prognosis in Chronic Myelogenous Leukemia

B. Pedersen (Univ Institute of Medical Genetics, Copenhagen)

Acta Haemat 39:102-111 (No 2) 1968

Most patients with high prevalences of Ph¹-disomic cells show very immature blood pictures and are in the terminal stage of chronic myelogenous leukemia. Ph¹-disomy is therefore often interpreted as a prognostically bad omen. The extra Ph¹- seems to be a supernumerary chromosome in most cases, and thus Ph¹-disomic cells may play a role similar to that of cells with other supernumerary chromosomes, the great majority of which are also found in the late phase of the disease and in patients with very immature blood pictures. Development of the two cell types, which seem to be parallel events during progression of the disease, confirms this suggestion. Consequently, both cell types have probably much the same prognostic significance in patients with myelogenous leukemia.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

CHRONIC OBSTRUCTIVE AIRWAY DISEASE

Two clinical types may be recognized in patients with chronic airway obstruction. One is the emphysematous type, designated as "PP," and the other the bronchial type, called "BB." Differences are found in the cardiac output of the two types of patients.

Chronic airway obstruction has usually been classified on the basis of physiologic measurements of lung function or on destructive parenchymal lesions found at autopsy.

However, another approach to classification is suggested by clinical features. These indicate that some patients with chronic airway obstruction—ones at opposite ends of a wide clinical spectrum—may be classified as either "pink puffers" (PP) or "blue bloaters" (BB).

A cardiopulmonary classification can be formulated for these patients on the basis of differ-

Giles F. Filley, M.D.; Henry J. Beckwitt, M.D.; John T. Reeves, M.D.; and Roger S. Mitchell, M.D. The **American Journal of Medicine**, January, 1968.

ences in ventilatory and circulatory responses to the demands for tissue oxygenation, and anatomic and pathologic characteristics.

In the study reported, 112 patients were selected from an "Emphysema Registry" maintained at the University of Colorado Medical Center. They were classified as PP if they were thin or had a history of major weight loss, had narrow cardiac shadows on their roentgenograms, a hematocrit less than 55 per cent, and no history of heart failure or of phlebotomy. Patients were classified as BB if they had no marked weight loss except terminally, had cardiac enlargement, had had at least three treated episodes of heart failure, a hematocrit repeatedly greater than 60 per cent, and had had 10 or more phlebotomies.

In addition to clinical examination, standard pulmonary function tests were made. These included maximum breathing capacity (MBC); vital capacity (VC) and forced expiratory volume (FEV_1); test of inert gas distribution; arterial blood and gas exchange measurements; exercise tests; cardiac catheterization; and, in the case of 20 patients who died, pathologic examination.

The range of ventilatory impairment was similar in both types, as were several measurements of gas exchange. Alveolar ventilation was not significantly different in the two types. However, when alveolar ventilation was expressed as per unit of oxygen uptake, the ratio was significantly lower in BB patients than in PP ones.

The overall pulmonary ventilation was greater in PP patients than in BB ones, and arterial oxygen saturation was much lower in BB patients both at rest and during exercise.

At autopsy examination of the 20 patients (evenly divided between PP and BB patients), the 10 PP patients were all found to have had severe emphysema; only two had mucous gland hyperplasia in their bronchi. On the other hand, seven of the 10 BB patients had mucous gland hyperplasia and two did not have severe emphysema.

While physiologic measurements in chronic pulmonary disease are useful in guiding therapy, by themselves they provide little information of differential diagnostic importance and may be misleading if not properly interpreted.

In the present series, the total lung capacity of PP patients was greater than that of BB patients. In BB patients emphysema appears to be somewhat less severe than in PP patients, and mucous gland hyperplasia seems to be more common.

Physiologic Findings

Striking differences were found between PP and BB patients in their cardiac outputs. The arteriovenous oxygen difference was consistently smaller in BB patients, meaning that cardiac output, for a given oxygen uptake, was consistently higher than in PP patients. Since the patients in this series were separated into two types which do not depend on strictly "pulmonary" signs, it is not surprising that ventilatory measurements do not yield the distinguishing features provided by the cardiac outputs.

In both types of patients, exercise brought about a comparable rise in cardiac output in the absence of congestive failure. However, when the BB patient was in congestive failure, the cardiac output fell with exercise. In heart failure both types of patients were severely hypoxemic, and the BB patients remained so in cardiac compensation. In the PP patient the arterial saturation was lower at rest than during exercise when in failure; in the BB patient the saturation was lower at rest than during exercise when not in failure.

The amount of oxygen delivered to the lungs per minute is greater in PP patients than in BB patients because their ventilation is greater. This becomes significant when expressed as a ratio of ventilation to oxygen uptake.

A difference between the oxygen output transport system in the two types of patients is that the hypoxemic BB patient has a lower total ventilation and a higher cardiac output. The PP patient, regardless of his metabolic or cardiac status, has a higher ratio of total ventilation to cardiac output. In the BB patient, arterial hypoxemia is associated with low-ventilation to cardiac output values.

Although a chronic cough usually develops early in both types of patients, the history of cough is of longer duration in the BB than in the PP patients. Both types are dyspneic, but the dyspnea is more severe and disabling in PP patients than in BB ones.

Arterial Blood

The arterial blood of the BB patient is less saturated than that of the PP patient but his tissues are probably less hypoxic. His heart fails when he has a pulmonary insult such as acute

bronchitis, bronchiolitis, pneumonia, pulmonary embolism, or excessive sedation.

The simple and practical criteria by which these types can be distinguished not only have diagnostic value but also raise questions about several general physiologic responses to different types of pulmonary interference with oxygen transport.

Two general mechanisms are available for adjusting to oxygen deficiency. They are by decreasing the rate of oxygen consumption and by increasing both the rate of oxygen delivery to the tissues and the rate of oxidative metabolism. The PP patient, with his weight loss, small consumption of oxygen, and low cardiac output, appears to be "adapting," while the BB patient, consuming more oxygen and with a higher cardiac output, seems to be putting up more of a "struggle."

The importance of the distinction between hypoxia and hypoxemia must be emphasized. Perhaps the PP patient, with arterial saturation almost normal, is only superficially "pink" and the hypoxemic BB patient is only superficially "blue". When direct methods become available for determining which type has the more severe hypoxia in the body tissues, these labels may need to be reversed.

Arterial Pressure Responses

H. P. Dustan et al (Cleveland Clinic, Cleveland)
Circulation 37:370-379 (March) 1968

A wide spectrum of arterial pressure responses to discontinuing antihypertensive drug treatment was found in 65 patients. In five, spontaneous pressure variations prevented judging effects of drug discontinuance. Of the remaining 60, pressure returned to pre-treatment levels in 21, and rose toward control levels in 37, while in two, diastolic hypertension did not appear in more than eight years. Rate of rise of arterial pressure seemed related to type of hypertension and to height of diastolic pressure and severity of vascular disease before treatment. In six of nine patients who had had malignant hypertension and six of nine with renal arterial disease, pressure rose promptly and treatment was restarted within a month. Among essential hypertensive patients, those who remained off treatment for two to six months had significantly lower pre-treatment pressure than those whose hypertension returned in less than two months. The two whose diastolic hypertension seemed "cured" had no distinguishing features.

Comparative Exercise Cardiorespiratory Response of Normal Men in Third, Fourth, and Fifth Decades of Life

J. S. Hanson, B. S. Tabakin, and A. M. Levy (Univ of Vermont College of Medicine, Burlington)
Circulation 37:345-360 (March) 1968

Circulatory and respiratory responses to five levels of treadmill exercise were recorded in 75 normal males divided equally in age groups 20 to 29, 30 to 39, and 40 to 49 years. Significant differences were observed between groups in cardiac output, stroke volume, and systolic, diastolic and mean arterial blood pressure, as well as pressure-related variables. Normal untrained males in the fourth and fifth decades of life reacted to moderate and heavy upright exercise with statistically significant systemic pressure elevations as compared to 20-year-olds. A tendency toward initially high cardiac output and stroke volume during light exercise was observed in the older men. Relatively small subsequent increments in cardiac output with resultant low absolute values during heavier work were also characteristic for this group as reflected in their decreasing stroke output at submaximal loads.

July, 1968

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

VOL. 65 No. 2

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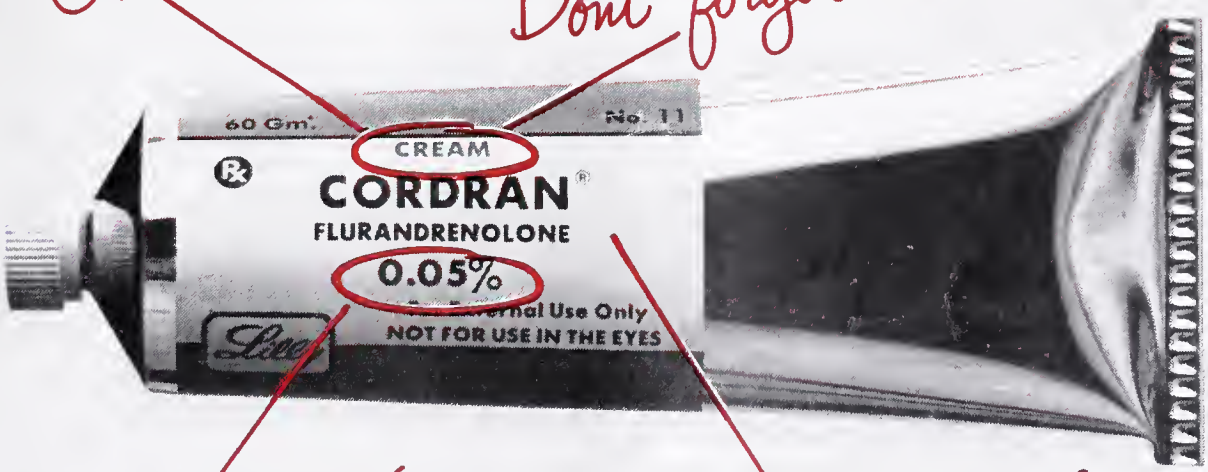

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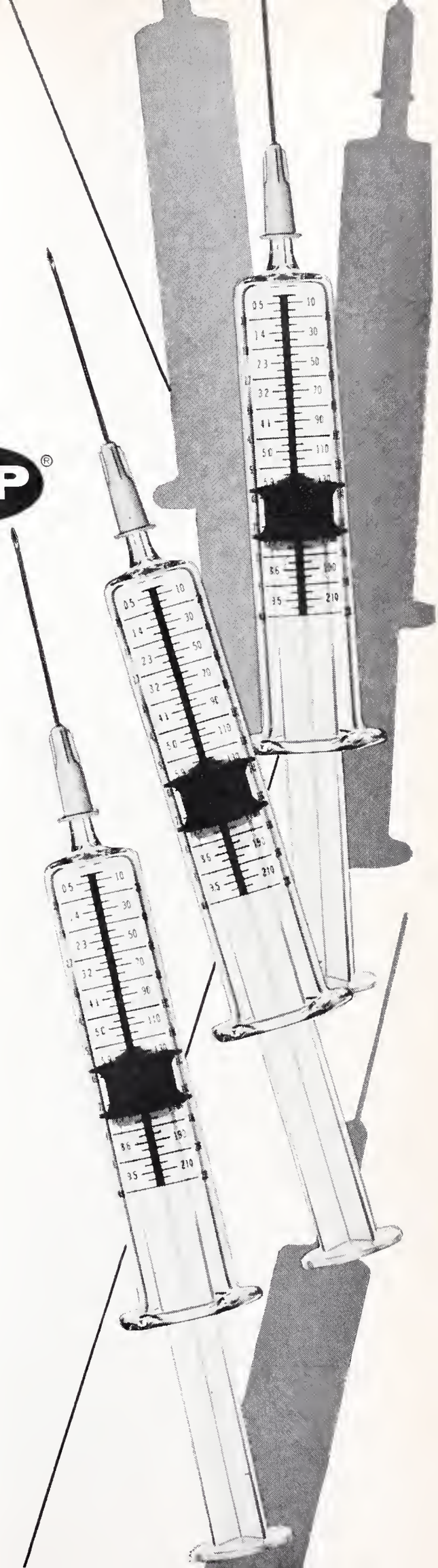

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Evaluation of Antimicrobial Agents in Outpatient Treatment of Urinary Tract Infections

E. Stewert Allen, M. D.*

There is no question concerning the number of antibiotics available for treatment of patients who have urinary tract infections, especially if one were considering their use in a hospitalized population. Unfortunately, this number is considerably decreased when only an outpatient population comprises the entire group under consideration.

Outpatient treatment involves consideration of the infecting pathogen, the antibiotic most effective against the pathogen, the route of administration of the antibiotic, and its safety.

The two groups of antibiotics most widely used today for outpatient treatment of urinary tract infections are the tetracyclines and sulfonamides. This is unfortunate in that both groups have certain inherent adverse properties which make them less than desirable insofar as the perfect antibiotic for outpatient use is concerned.

The purpose of the present study is to isolate the pathogens most frequently responsible for causing urinary tract infections and to determine by *in vitro* culture sensitivity tests the most effective antibiotics which can be employed with safety on an outpatient basis.

PROCEDURE

All urine cultures obtained from pregnant and nonpregnant women patients over a period of one year (from July 1, 1966 to June 30, 1967) at the University of Arkansas Medical Center, the St. Vincent Infirmary, and the private clinical laboratory of Doctors Dilday and Pehrson were tabulated as to total number, postive (>10,000 colonies/cc of urine) and negative cultures, pathogenic organism, and sensitivity of the pathogen (s) to ampicillin, kanamycin, cephalothin, nitrofurantoin, colistimethate, chloramphenicol, tetracycline, streptomycin, and sulfisoxazole.**

*413 N. University Avenue, Little Rock Arkansas 72205

RESULTS

There were 1,681 predominant infecting pathogens isolated from cultures of urine obtained from 1,681 women, approximately 50 percent of whom were pregnant. The organisms isolated, the number of strains tested, and their sensitivity to nine antibacterial agents are presented in Table I.

The predominant infecting pathogen was *E. coli* with 632 strains, followed in order of number of strains by *Proteus* (349), *Pseudomonas* (246), *A aerogenes* (206), *Coli aerogenes* (167), and miscellaneous (81).

Kanamycin and colistimethate were considerably more effective than any of the other antibacterial agents. In a hospitalized group of patients there would be no question as to the choice of antibiotic to be used but, unfortunately, neither colistimethate nor kanamycin is suitable for use on an outpatient basis because both must be administered parenterally. Of the nine antibacterial agents tested, five can be considered for outpatient treatment; namely, ampicillin, sulfisoxazole, tetracycline, chloramphenicol, and nitrofurantoin. Of these five, ampicillin, chloramphenicol and nitrofurantoin were more effective *in vitro* than either tetraycline or sulfisoxazole.

DISCUSSION

Urinary tract infections are a common occurrence and require appropriate chemotheraphy. The selection of the proper agent requires considerable thought, as any drug used will not only have a given effect on the patient but, if pregnant, on the fetus as well. Since all drugs have a potential for producing toxic effects, the physician must select the oral antibacterial agent which will

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TABLE I

July 1, 1966 to June 30, 1967

Percent of Organism Sensitivities

Organism	Strains tested	A*	B*	C*	D*	E*	F*	G*	H*	I*
St Vincents Inf.										
E. Coli	262	70%	86%	84%	65%	94%	88%	6%	76%	51%
Proteus	162	68%	88%	84%	71%	6%	29%	4%	70%	15%
Pseudo.	131	6%	3%	10%	19%	98%	12%	3%	41%	16%
A. Aerog.	78	14%	78%	81%	58%	85%	70%	8%	44%	41%
Coli. Aerog.	67	35%	55%	60%	52%	91%	79%	11%	64%	46%
Misc.	31	42%	71%	51%	61%	32%	30%	11%	50%	21%
Dilday & Pehrson										
E. Coli.	110	86%	90%	80%	67%	95%	80%	12%	85%	40%
Proteus	56	75%	90%	88%	68%	9%	31%	6%	70%	21%
Misc.	36	50%	65%	44%	54%	10%	19%	14%	48%	32%
Pseudo.	28	9%	11%	26%	16%	96%	14%	9%	50%	11%
Coli. Aerog.	10	60%	47%	64%	55%	90%	71%	6%	71%	40%
A. Aerog.	0									
U. of Arkansas										
E. Coli.	260	73%	90%	81%	63%	96%	81%	5%	80%	40%
Proteus	131	70%	90%	85%	67%	4%	25%	7%	68%	10%
A. Aerog.	128	12%	74%	84%	56%	84%	73%	6%	41%	46%
Coli. Aerog.	90	34%	61%	58%	50%	94%	74%	10%	62%	38%
Pseudo.	87	8%	5%	11%	24%	99%	14%	3%	43%	21%
Misc.	14	36%	68%	47%	56%	27%	32%	12%	70%	32%
TOTALS										
E. Coli.	632	76%	88%	82%	65%	95%	83%	8%	80%	45%
Proteus	349	71%	89%	86%	69%	6%	28%	6%	69%	15%
Pseudo.	246	8%	6%	16%	20%	98%	13%	4%	69%	12%
A. Aerog.	206	13%	76%	82%	57%	84%	71%	7%	42%	43%
Coli. Aerog.	167	43%	54%	61%	52%	92%	75%	9%	66%	41%
Misc.	81	43%	68%	47%	53%	23%	27%	12%	39%	28%

*A = ampicillin trihydrate
*B = kanamycin sulfate
*C = sodium cephalothin
*D = chloramphenicol
*E = sodium colistimethate
*F = nitrofurantoin
*G = sulfisoxazole
*H = streptomycin
*I = tetracycline

achieve optimal results with a minimum of adverse effects.

One of the major problems related to antibacterial agents has resulted from failure to isolate the infecting pathogen and to determine its sensitivity to specific antibiotics. This has led to the use of agents which are ineffectual, and has resulted in the development of mutants which are often resistant to the antibiotic which should have been used in the first place. One of the best examples of the development of resistance to an antimicrobial is in connection with the sulfonamides. The sulfonamides have always been indicated in the treatment of urinary tract infections

and have, in the past, produced satisfactory results in a high percentage of cases, especially against *E. coli*. Today, however, because they have been used without pretreatment sensitivity tests, the sulfonomides are being defeated by resistant organisms.[1-3] As may be observed from Table I, only 8 percent of the 632 strains of *E. coli* were sensitive to sulfisoxazole.

Another factor which makes some of the orally administered antibacterial agents unsatisfactory for use on an outpatient basis is the deleterious effects produced by these agents under certain conditions. The sulfonamides, especially the long-acting ones, are hazardous in the treatment of urinary tract infections in pregnant patients.[4,5] They have been shown to be harmful to the fetus as well as to the mother.[4-7] The development of acute pyelonephritis, for example, can usually be avoided when, early in pregnancy, chemotheraphy is instituted in the presence of bacteriuria and continued throughout term. In this situation, sulfonamides are contraindicated since they can interfere with the conjugation of bilirubin to serum-protein, thus increasing the chance of kernicterus in the fetus.[8] The tetracyclines represent another group of antibacterial agents which are known to produce toxic effects, such as nephrotoxicity and hepatic dysfunction.[9,10] They are also contraindicated for use during pregnancy because of their effect on the fetal dentition.[9-11]

The nitrofurans and chloramphenicol, which was the most effective of the oral antibiotics *in vitro*, are no exceptions. They are hemolytic oxidant drugs.[4] Red blood cell hemolysis by these drugs is not limited to patients who have a deficiency of the enzyme, glucose-6-phosphate dehydrogenase, but can occur when the concentration of these drugs in the blood is sufficiently high.[4] This may result when there is renal impairment or in the presence of overdosage. Chloramphenicol can also produce agranulocytosis and aplastic anemia.[4,12] Ampicillin is free of toxicity, although the hypersensitive individual may develop an allergic reaction.[11]

Although the loss of effectiveness through indiscriminate use and the toxic effects of these oral antibacterial agents are important, still other factors must be considered and weighed in terms of the infecting pathogen, the dosage levels required, and the chronicity of the disease.

The identification of the infecting pathogen is of paramount importance in selecting the antibacterial agent to be employed. Not only the determination of the identification of the pathogen, but the cure as well should be based on bacteriologic methods. Cure should not be judged on the basis of clinical response alone as both infection and reinfection may occur without symptoms and only by repeated cultures can identification of an existing pathogen or the cure be determined accurately.

The amount of antibacterial agent required in the treatment of urinary tract infections varies with the antibiotic. It would appear that the tissue levels achieved are of equal or greater importance than the levels of antibiotic in the urine. Sufficient antibiotic in the urine may sterilize the urine and eliminate the offending organism, but this does not guarantee that the urine will remain free from the pathogen once therapy has been discontinued. It would appear that the best results are achieved by those antibiotics which produce high blood levels and, hence, high tissue levels.

Chloramphenicol, administered orally in adequate amounts, produces high blood levels but, unfortunately, because of its ability to produce blood dyscrasias,[11] should never be used as initial therapy for urinary tract infections on an outpatient basis. Nitrofurantoin is recommended for acute urinary tract infections but produces only low blood levels and, hence, only low tissue levels. Frequent relapses of urinary tract infections are common with this antibacterial agent.[11] Also, in order for nitrofurantoin to be most effective, an acid urine should be maintained throughout treatment.[13] Neither the tetracyclines nor the sulfonamides appear to be effective *in vitro* (Table I) against most of the predominant infecting organisms. Ampicillin, which produces high serum and urine levels,[11,14] is effective against *E. coli* and *Proteus* (Table I), the two predominant pathogens isolated in the urine cultures collected in this study. *Pseudomonas*, however, is not sensitive to ampicillin. It has also been observed in the literature that *in vitro* results correlate well with *in vivo* results. Although ampicillin, like penicillin G, is destroyed by penicillinase, many strains of *E. coli* are poor penicillinase producers[11] and, therefore, offer little resistance to the antibiotic.[11] Ampicillin is much safer and more effective than most of the available oral antibacterial agents suitable for outpatient use and, because of its comparative safety and high concentration in the serum and urine, considerable interest in this

antibiotic in the treatment of urinary tract infections has developed.

Of the agents tested in this study, ampicillin appears to have the greatest potential for outpatient use.

SUMMARY AND CONCLUSIONS

All urine cultures obtained from pregnant and nonpregnant women patients over a period of one year were tabulated as to total number, postive and negative cultures, pathogenic organism, and sensitivity of the pathogen (s) to nine antibacterial agents. There were 1,681 cultures made. The predominant pathogens were *E. coli, Proteus,* and *Pseudomonas.* Of the nine antibacterial agents, the five which were administered orally were considered suitable for use on an out-patient basis. The *in vitro* and *in vivo* activity of the five agents was discussed from the standpoint of efficacy and safety, and the need for more discriminate application of antibacterial therapy through sensitivity testing was emphasized.

It is concluded that ampicillin should be given preference as initial therapy in the treatment of urinary tract infections on an outpatient basis, and that those which have inherent toxic potential be reserved for more serious and complicated infections in which the risk involved in their use is warranted. It is also concluded that the selection of the proper antimicrobial agent through sensitivity testing is paramount in perpetuating the usefulness of these agents in combatting infectious diseases, and that their indiscriminate use can only result in resistant organisms and treatment failure.

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Comparison of Continuous and Intermittent Anorectic Therapy in Obesity

J. F. Munro et al (7, Oxgangs Rd, Edinburgh) *Brit Med J* 1:352-354 (Feb 10) 1968

Appetite-reducing effect of phentermine administered continuously and intermittently was evaluated against an inert capsule during a 36-week double-blind trial in 108 women newly referred to hospital for dietary advice. Seven were withdrawn because of troublesome symptoms suggesting CNS stimulation though one was receiving the inert capsule. Of the 64 patients completing the trial, the mean weight loss was 27.0 lbs. and 28.7 lbs. for those who received phentermine continuously and intermittently compared with 10.5 lbs. in the groups treated with the dummy. The individual response to therapy was very variable but, irrespective of the method employed, weight loss diminished with duration of treatment. There seems to be no advantage in taking an anorectic continuously since intermittent treatment is as effective, cheaper, and possibly safer. Further clinical studies are still required to find out how anorectic drugs can best be used.

The Changing Medical Curriculum

Winston K. Shorey, M. D.

My assigned topic for this meeting is "The Changing Medical Curriculum". I feel that it is safe to assume that there are individuals in this audience who are not completely familiar with existing medical school curricula. Therefore, an intelligent approach to the assigned topic requires a description of the existing base from which any curriculum change is to be made. Possibly an understanding of our medical school curriculum can best be obtained by a review of its evolution. Furthermore, such a review will emphasize the constantly changing pattern of curricula for medical education, a ferment that is known to few people who are not directly involved in medical education.

Modern medical education, as a relatively standardized high level operation throughout the entire country, dates back only to 1910. Prior to that time, in this country, there were a very few prestige medical schools and a very large number of poor mediocre institutions awarding the M. D. degree. Some of the latter were outright diploma mills and many more were proprietary schools usually associated with a hospital. At best, most of these programs were of the trade school type with little if any orientation toward scientific medicine.

The American Medical Association, concerned about the quality of education being produced by these medical schools, elicited the support of the Carnegie Foundation to study and make recommendations regarding the entire field of medical education. A man by the name of Abraham Flexner was employed by the Carnegie Foundation to make this study, and in 1910 he published a report that became the basis for medical education as we know it today. Flexner was particularly concerned with the lack of teaching in the basic sciences found in most medical schools. To overcome this deficiency he recommended that schools of medicine generally be affiliated with universities rather than existing as hospital based schools. His report included a recommendation for each of the medical schools operating at that time, and for many of them it was to either provide a quality program in medical education or be closed. Prior to 1910 there had been a total of 457 medical schools in existence at one time or another. At the time of the Flexner report there were 155. In the years following the report the number gradually decreased until in 1929 there were only 76.

Following the Flexner report, medical schools placed great emphasis on improving the teaching of the basic sciences, and the departments teaching these disciplines became well developed and staffed with full time faculty members. The teaching of clinical medicine in most schools continued to be carried out on a part time basis by physicians engaged in the private practice of medicine, and lectures were utilized as the primary teaching technique for presenting the subject material of clinical medicine to students. Patients were utilized to illustrate lecture material, but students were not permitted to work with patients until all aspects of clinical medicine had been covered by lectures.

It was about this period of development of medical education that I became personally involved as a medical student, and can speak from direct observation to the current time. My first two years were devoted to the basic sciences in the classical manner with anatomy, physiology and biochemistry taught as individual disciplines in the first year; and pathology, bacteriology, and pharmacology occupying the major portion of the second year. Also, we were introduced to patients through a course in physical diagnosis, and another course in use of laboratory diagnostic methods was presented.

The third year, or first clinical year, found us spending a majority of our time in lecture rooms listening to faculty members tell us about diseases, how to diagnose them, and how to treat them. Actual clinical experience was limited to the out-patient clinic where we saw patients who were being cared for by someone else. At best, this amounted to a high level course in physical diagnosis in the medical clinics and an opportunity to become acquainted with certain techniques in the surgical clinics. It did not provide the atmosphere necessary for learning medicine most effectively, namely close continuing involvement with patients with provision for the student

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to read about and hear about diseases at the same time that he is assisting in the care of patients with these diseases.

Our senior year did provide a clinical experience under supervision on the hospital wards, but this was broken up by lectures which usually were unrelated to the ward activities.

Major changes occurred in the teaching of clinical medicine following World War II with great emphasis being placed upon a student learning medicine through active participation in patient care. The clinical clerkship, rather than lectures became the primary teaching technique. Obviously, active student participation with patients requires close supervision; and this development was accompanied by the growth of full time faculties in clinical medicine as well as the basic sciences. The development of clinical clerkships, as they exist today, also was dependent upon the growth of residency programs which provide training in the specialties for graduate physicians. These physicians in training are geographically on the spot within the hospital, in close association with medical students giving them guidance in the absence of a member of the faculty.

Thus today a medical student, upon completion of his two basic science years, enters immediately into direct patient care. Unless a patient presents with an emergency situation, the student is the first person to see the patient as a physician. He takes a history, performs a physical examination, and arrives at his conclusions regarding the patients' problems and what should be done about them. He then confers with housestaff and faculty about his findings and learns where he has been both right and wrong. He is directed to read about the diseases with which he comes in contact and to report back regarding his reading. He participates in small group conferences with his student colleagues and faculty members where give and take discussions regarding all aspects of medicine occur. He participates in the care of each of his patients within his capabilities for as long as the patients are in the hospital. If he is participating in the case of a surgical patient, he goes to the operating room and is an assistant at the operation.

The third year of medical school finds the student working primarily with hospitalized patients and the fourth year student working primarily with out-patients. The fourth year student has the opportunity to work on a continuing basis with patients, making repeated visits to the out-patient clinic in much the same way that the third year student works with in-patients.

Having in a brief manner brought us up to date regarding the teaching of clinical medicine, let us go back a few years and take another look at basic science teaching. As already mentioned, the Flexner report stimulated the development of strong basic science departments; and these developed as fairly autonomus units, each teaching its dicipline according to its own devices within the time assigned by the medical school. The development of strong basic science departments was associated with very productive research in the biomedical sciences.

Among other results of this advance in knowledge, two are of major significance: (1) Subject material in the basic sciences had an increasing direct relationship to the care of patients, and this resulted in a need for clinicians to have a practical working knowledge of the basic sciences rather than merely a scientific background upon which to build clinical information. (2) With expansion of information in each discipline, considerable overlap in both interests and subject material occurred between disciplines. This resulted in students not infrequently being taught the same material by two or more departments, each working independently. In the 1950's concern regarding the need for increased communication between medical school departments and the need for a medical student to have a better integrated presentation of all subject material led to what at the time seemed to be revolutionary changes in medical school curricula. Western Reserve University School of Medicine, in particular, made sweeping changes in its educational program, and integrated teaching in medical schools frequently is referred to as the Western Reserve system.

The objective of such a program is to have all disciplines present their subject material regarding a certain portion of the human body during the same teaching period. As an example, instead of the anatomy of the heart being taught when a student is taking anatomy as a discipline, the physiology of the heart being taught when the student is taking physiology, and diseases of the heart being taught when the student is taking pathology; a period of time is set aside for teaching all aspects of the heart with faculty from each discipline working together in this effort. This

approach to teaching requires a great deal of committee work with representatives from each department working together to develop and implement an integrated teaching program for each portion of the body. Furthermore, this type of teaching is best accomplished in what are referred to as multidisciplinary laboratories. Such laboratories are equipped to serve the needs of all disciplines, making it possible for the student to do all of his work in one place with faculty members from all departments going to these laboratories to make their contributions to the integrated program. Also, these laboratories are constructed as a series of small laboratories, each accommodating a maximum of sixteen students. These are in contrast to the conventional large open laboratories found in medical schools where each discipline conducts its own teaching program as an independent course. The objective of the small interdisciplinary laboratories is, not only to provide the equipment necessary for integrated teaching, but also to facilitate close faculty-student relationships which are essential for successful implementation of this type of teaching program.

The development of the Western Reserve program stimulated many other medical schools to review their curricula, and many adopted modifications of the Western Reserve system. Futhermore, in schools that retained the conventional structure of teaching, revisions in course content were made with particular emphasis upon communication between departments to avoid duplication of effort and to collaborate with each other when it is appropriate to do so. The University of Arkansas School of Medicine falls within this latter group of schools, and I believe that we rank high among medical schools in the degree of cooperative effort that exists between the people of our several departments. Why did not all medical schools follow the precise pattern set by Western Reserve? In the first place, not everybody agreed that the concept of total integration in teaching was the best method to follow. However, more important is the amount of faculty time that must be utilized to plan and implement such a program. Many medical schools do not have the resources in either faculty or facilities to launch such a program.

However, the concepts of cooperative effort among departments can be utilized even without total integration in teaching.

The foregoing discussion brings us to where we stand today in the continuing progress of upgrading medical education; and today medical schools are faced with new challenges which must be dealt with in curriculum planning. These challenges include: An ever increasing need for additional physicians, students entering medical school with much better preparation than in the past, a constantly growing fund of knowledge in medicine which makes it impossible to teach everything during a four year medical school program, a great need for family physicians at a time when the majority of medical school graduates are seeking residency training in the medical specialities, and a growing awareness that the time spent in education and training to enter the practice of medicine is becoming very prolonged. How does a medical school proceed to meet these challenges and produce changes in its curriculum to answer them? We must remember that a medical school like any other institution of higher learning is primarily a congregation of faculty members upon whom rests the responsibility for teaching. The responsibility of administration is primarily that of finding and retaining the best people, providing the ways and means whereby the faculty can carry out its responsibilities, and establishing the mechanisms through which the faculty can seek the answer to the challenges presented. The primary mechanism for the latter is the establishment of committees. A very important committee is the Curriculum Committee, and we have one that has been very active. Here is a copy of a report of the Curriculum Committee that was submitted this past fall, and you can see that it is a document of some size. It represents nearly two years of work which includes: (1) Interviews with all the departments of the Medical School to learn precisely the content of our current teaching program and to obtain from each department its future needs as regards curriculum. (2) Consideration of curriculum development in other medical schools and (3) Consideration of national trends and needs in medical education.

This report was distributed to all members of the medical school faculty following which we held what is known as a faculty retreat. For a day and a half the entire faculty met to consider the future of medical education. Problems to which the Curriculum Committee had addressed itself were presented to small workshop groups of the faculty for consideration. The results of these discussions then were presented to the faculty as a whole for its consideration.

Final decisions regarding our future curriculum are far from achieved, but progress is being made. I have here another volume which contains the report of deliberations at the faculty retreat.

I will attempt to relate some of the concepts that have definitely evolved. I would add that these concepts are not unique to our own medical school and are being built into curricula of many other schools.

1. In the future, the four year curriculum of a medical school will not be considered as a self contained entity. Consideration must be given to the educational program which the individual student has pursued prior to entering medical school and to the training he intends to pursue following graduation from medical school. Progress currently being made in undergraduate college education is certain to produce courses which are sufficiently similar to those in the basic science years of medical school that will be quite inappropriate for a student to repeat the same material in medical school. In such instances the medical school will permit the student to engage in some other appropriate academic activity in lieu of repeating the same material. Care must be exercised that implementation of this policy does not result in students devoting themselves to medical school oriented courses in college to the detriment of their general college education.

2. The future medical school curriculum will be much more flexible than it is at present. All medical students now pursue essentially the same path through medical school in what is referred to as the lock-step mechanism. In the past, when a student could be exposed to practically all that is significant in the field of medicine during four years, this educational pattern was appropriate. Furthermore, this pattern was designed to produce graduates who for the most part would go into general medical practice following a year of internship. Obsolescence of the inflexible conventional curriculum is developing rapidly as a result of the pace of medical advancement and the vast amount of knowledge that continues to to accumulate without abatement. The impossibility of teaching all that is known during four years requires that judgment must be exercised in selection of the most significant material for teaching. One then is posed with the question, "Is it appropriate to select identical material for all medical students or conversely to omit for all students the same material?" In my opinion, the trends that have occured and continue to occur in medical practice demand that this question be answered with an unqualified "no." However, much as we may wish it were otherwise, more and more young physicians are going on after graduation from medical school into residency training programs to be specialists. Furthermore, very few of those planning to enter general practice do so without taking additional training beyond the year of internship. This being so, it appears logical that in making judgments regarding material to be omitted from the medical school curriculum, consideration should be given to the needs of the individual students in relation to projected plans for practice. Following through on this line of reasoning, it seems clear that if a medical school is to make the best use of its educational resources, its curriculum must be sufficiently flexible to permit a medical student to select for himself, with counseling, a considerable portion of his experience in medical education. Therefore, I feel confident that the medical school curriculum of the future will offer many more elective courses than it does today.

3. It follows, from the foregoing discussion, that in the future students will be making decisions regarding their future medical careers at an earlier date than at present. To a degree this is true, but it should be pointed out that a survey among our students indicates that already decisions are being made during the early years of medical school which frequently are not changed as the student advances through school. I believe it can be said that more flexible curriculum will lead more students to make earlier career decisions and will make a student's education more meaningful after the decision is made.

4. The medical student of the future will be involved at an earlier date in direct care of patients. This considerable significance in relation to earlier career decisions on the part of students, permitting a student to have more information regarding the many fields of clinical medicine as he comes to conclusions regarding his future role as a physician. Earlier experience with patients and their diseases also has a significance from the purely pedagogical point of view. Many students find it difficult to understand the necessity for the heavy academic load in the basic sciences during the first two years in medical school as the curriculum now is structured. However, having advanced into the clinical years, the need for an

extensive basic science background becomes obvious to a student, and he wishes he could have forseen this need when he was involved with the basic sciences. It is hoped that through earlier contact with patients and observation of the application of fundamental basic science information to clinical problems a student will gain greater insight into the need for him to acquire a thorough understanding of the basic sciences. Also, he should be better able to sort out for himself the more significant from the less significant as he reads basic science material.

5. My discussion so far has indicated a rather sharp distinction between the teaching of the basic medical sciences and the teaching of clinical medicine; and, indeed, the current medical school curriculum is structured to make this distinction quite definite. With the development of an educational program which provides for earlier student contact with patients and for the student to elect significant portions of his medical school work, one can forsee much greater intermingling of basic science and clinical activities in medical school; and this can be hoped for. The effective physician of the future must have a working knowledge of the basic sciences which he applies directly to clinical problems without distinguishing in his mind that at one time he is thinking basic science and at another time clinical medicine.

6. Concern regarding the need for many more physicians to enter general practice or, as it is frequently referred to today, family practice, prompts me to comment specifically upon this field of medical practice in relation to curriculum. As I have already stated, the conventional curriculum as it exists today has evolved to provide a general background in medicine, and the concept has been held in the past that this was adequate preparation for a graduate to enter general practice following a year of internship. For several years attention has been given to the need for the physician entering general practice to have more post-doctoral training than an internship, and residency programs have been devised to accomplish this. These programs to date have not been universally successful. The Academy of General Practice has been very concerned about training programs for general practice, and has put a great deal of effort into this. Currently it appears that family practice will emerge as a designated specialty with residency training requirements established as for other specialties. Whatever the final outcome of this projected development, our medical school curriculum must provide sufficient flexibility for the student looking forward to a career in family practice to permit him election of academic activities oriented toward this specialty in the same manner that another student may orient himself toward a more limited specialty.

7. It must be pointed out that for any medical school to implement changes in its curriculum which incorporate the concepts which I have presented both the number of faculty members and the facilities to house them must be increased. We, therefore, are talking in terms of future plans and progress, not changes that can be made immediately merely by the decision to make them.

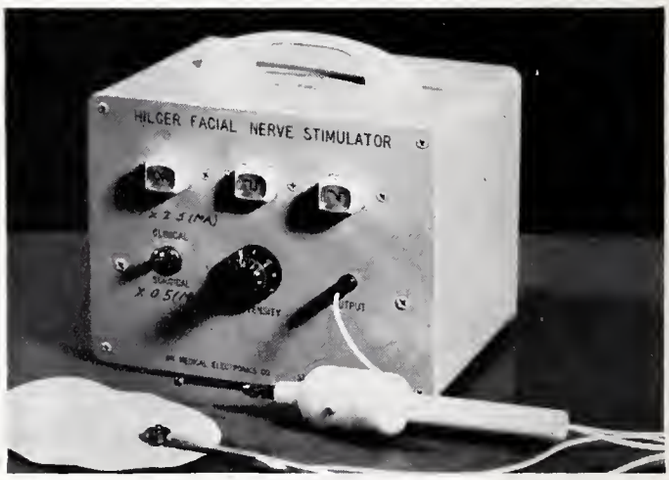
8. In conclusion, I will comment upon the length of time that it takes to become a practicing physician. This is of concern to everyone from the viewpoint of cost in both time and money. At the same time, this to me is the most difficult of all the issues with which we are concerned in curriculum planning. As already noted, the abundance of accumulated medical knowledge, and that which is yet to come, creates a major problem in keeping the time involved in educating a physician within traditional limits. However, it is incumbent upon us who are involved in medical education to find the ways of keeping this period of time at least within current limits and, if possible, to shorten it. As a final statement, let me say that while the time involved in gaining a medical education is long, very rarely does one hear regrets from those who have completed it. The work frequently is hard and strenuous, but, at the same time, most of it is interesting; and the further one progresses with his medical education the more enjoyable the work becomes.

The Surgical Management of Bell's Palsy

Roger Boles, M. D.*

Surgery of the facial nerve is not new. Otologists have recognized and surgically treated facial paralysis resulting from suppurative otitis media for over 100 years. Within the past 50 years, surgical restoration of the facial nerve, traumatized within the temporal bone from skull fractures or accidentally during mastoid surgery, has become popularized.[1,2] Decompression, reanastomosis, and grafting have all been accomplished through the mastoid approach with gratifying results. During the past 30 years, surgical decompression of the facial nerve through the mastoid approach has been done with increasing frequency throughout the world for Bell's palsy.[3,4,5] Although surgical decompression of the facial nerve for Bell's palsy is still premised on theoretical considerations, there is less and less doubt in the minds of the vast majority of the serious students of the facial nerve as to the efficacy of the operation in selected cases. The biggest questions have always been in the proper selection of cases and further in trying to determine the most appropriate time for operation in these cases. Newer electrical testing techniques have given us greater insight into the functional status of the diseased facial nerve and have allowed us to prognosticate regarding its recoverability with far greater accuracy and conviction.[6] This greater objectivity in evaluating the facial nerve has led to earlier and more hopeful decompression operations in the patients with the poorer prognoses.

Although Sir Charles Bell, after whom the affliction is named, described the disease as a "neuritis" of the facial nerve, it is the rather strong concensus today that the paralysis results from ischemia of the facial nerve. The exact etiology of this ischemia is unknown, though Hilger feels the ischemia may be due to a local autonomic dysregulation involving the blood vessels in or near the temporal bone.[7] This ischemia causes a temporary physiological block of impulses along the nerve. This ischemia also causes venous congestion and edema of the nerve and perineural tissues within the bony Fallopian canal of the mastoid portion of the temporal bone, and this swelling leads to further compression of the collateral circulation within this bony canal and hence to more ischemia. A vicious cycle is thus established. It is presumed that if this swelling and ischemia are severe and prolonged enough, nerve fibers will begin to degenerate, leaving the patient with a sustained paresis or even complete paralysis. Once degeneration of the nerve fibers has occurred, recovery of the paresis or paralysis will then depend upon regeneration of these fibers. Unfortunately, this regenerative process is not always a 100% affair, frequently leaving the patient with only partial and unsatisfactory recovery of facial symmetry and function. Regen-



erative axons also have a tendency to regrow in random directions such that those which previously supplied the mouth now innervate the eye and vice versa. This axonal confusion results in mass motion of the face rather than the more pleasant selective motions of the various parts of the face. Regenerated nerve fibers also occasionally acquire perverted impulse characteristics resulting in disturbing facial tics or even sustained facial contractures. Fortunately, in most cases of Bell's palsy, the ischemia and swelling of the nerve are not severe and sustained enough to cause degeneration of a significant number of nerve fibers, so that complete or, at least satisfactory, recovery of facial function is the rule rather than the exception. This has been well recognized by all clinicians dealing with this disease. The good fortune of the majority of Bell's palsy patients unfortunately does not lessen the disability and grotesque sequelae of those patients who do not attain a satisfactory recovery of their facial paralyses. It is with this smaller unfortunate group of pa-

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tients with whom the temporal bone surgeon has concerned himself and can offer the benefits of facial nerve decompression through the mastoid approach. Since the poorest recoveries are associated with sustained, severe ischemia and swelling of the facial nerve within the Fallopian canal, with resultant degeneration of nerve fibers, the objective of the decompression operation is to remove enough of the encircling bony Fallopian canal from around the swollen nerve to allow for expansion of the nerve and its supporting tissues and for refilling of its blood vessels. If this can be accomplished early enough in those nerves which are beginning to show signs of degeneration, then the degenerative process may be aborted or sufficiently ameliorated, such that all of the uncertainties and sequelae of the slow regenerative process may be obviated.

How is the surgeon going to tell which patients are going to undergo nerve degeneration and have a poorer prognosis for recovery? After all, most patients with Bell's palsy will have a satisfactory spontaneous recovery and an operation must obviously be avoided in these patients. Laumans and Jongkees found several clinical criteria to be fairly reliable as indicators of the severity of the paralysis and as prognosticators of the chances for recovery.[8] The most reliable was the degree and duration of the paralysis. Patients with an initial complete paralysis had a very poor prognosis. If the paralysis was still complete by the end of the first week, the chances for full recovery were 50% and fell to virtually zero if the paralysis remained complete by the end of the second week. On the other hand, if the paralysis was only incomplete by the end of the first week, the chances for full recovery were 95%, and if still partial by the end of the second week, full recovery chances were 85%. The incomplete paralyses are obviously of little concern to the surgeon, since the vast majority of these will recover spontaneously. It is the complete paralyses which become the interest of the surgeon, and which may be helped in selected cases by facial nerve decompression. The surgeon, however, is still faced with the problem of how to distinguish those complete paralyses which will recover spontaneously to an acceptable degree from those which will not. What is needed is a means of telling as early as possible whether the nerve fibers are degenerating, since this is the basic phenomenon from which poor recoveries result. Complete paralysis can be present clinically and yet with no degeneration of the nerve fibers. As long as little or no degeneration takes place in these complete paralyses, the chances for good recovery remain excellent.

How then can we detect as early as possible nerve degeneration in the patients with complete paralyses? Electrical tests have given us the best and most practical estimates of axon viability to date.[9] Electromyography has traditionally been the standard and most reliable electrical test for lower motor neuron lesions. It is of great diagnostic and prognostic value in differentiating quantitively between complete and partial denervation, and qualitatively between paralysis due to transient physiological block and that due to nerve fiber degeneration. In reversible physiological blocks, motor unit potentials are preserved; whereas, when axon degeneration occurs, motor unit potentials are replaced by fibrillation potentials. The presence of fibrillation potentials has a high correlation with the subsequent development of mass motion and contractures of the face as well as with incomplete recoveries. If the Bell's palsy has been complete for two weeks or more and fibrillation potentials are present, surgical decompression of the swollen, ischemic nerve would seem to be indicated and should give the nerve a better chance for recovery by restoring circulation of this involved segment of the nerve. Good evidence has been shown for this by a number of astute students of the facial nerve.[3,4,5] The big deficiency with EMG is that fibrillation potentials do not appear until 14 days after nerve degeneration has already taken place. It has, therefore, not been an early enough indicator of nerve degeneration and does not help us in trying to prevent degeneration of the nerve. More recently, the *percutaneous nerve excitability test* has been popularized and has become a practical and reliable method for even earlier detection of axon degeneration. Unfortunately, even it has the disadvantage of a 72 hour latent period between the time of onset of a complete paralysis and the appearance of the loss of impulse conductivity along the degenerating nerve. Nevertheless, this percutaneous test reveals nerve degeneration 10 days earlier than EMG and it can be done quite reliably with a simple and relatively inexpensive nerve stimulator as an office procedure. (Fig. 1) The nerve stimulator produces a stabilized current with a maximum output of from 15 to 20 milliamperes. The main trunk of

the facial nerve is then stimulated percutaneously with an active probe in the region of the stylomastoid foramen with square-wave pulses of one millisecond duration at gradually increasing intensities of current. The presence or absence of grossly visible facial muscle twitching is used as the end point. The normal side of the face is always compared to the abnormal side. The test is performed as soon as the paralysis occurs and every day thereafter in order to keep a close electrical check on the conducting status of the involved nerve and to detect the first signs of decreasing electrical conductivity in nerves which are undergoing degeneration. A consistent difference of 3.5 milliamperes or more between the normal and abnormal sides of the face is felt to reliably indicate a significant degree of axonal degeneration in the affected nerve. It is at this first reliable electrical sign of early axonal degeneration that the surgeon should seriously consider decompression of the nerve and its blood supply and hopefully prevent further degeneration from taking place. Richardson correlated responses to nerve trunk excitability testing with degrees of recovery of facial palsies.[6] His group included 117 patients with Bell's palsy and his findings were as follows:

Nerve Excitability	117 Cases	Full Recovery	Incomplete Recovery: Distortion on Movement	Incomplete Recovery: Distortion at Rest and on Movement
Unimpared	61	55 (90%)	4 (7%)	2 (3%)
Diminished	21	10 (48%)	9 (43%)	2 (9%)
Absent	35	7 (20%)	11 (31%)	17 (49%)

It is the last group of patients, who have lost their nerve excitability completely, who stand to gain a great deal from decompression, and who do not have much to lose. Even selected cases in the diminished excitability group should be considered for early decompression, particularly those who show progressive diminution of excitability or who have other clinical or EMG signs which portend a poor prognosis for satisfactory recovery. Needless to say, the surgery must be very carefully done so that the nerve is not surgically traumatized. For the experienced otological surgeon this is not a very difficult operation and the hazards to the patient are minimal.

SUMMARY

1. Bell's palsy is felt to be an ischemic process of the facial nerve in the mastoid segment of the temporal bone. This ischemia leads to swelling of the nerve and accessory structures in the bony Fallopian canal leading to further compression of collateral circulation and further ischemia of the nerve. It is believed that severe and sustained swelling and ischemia produces degeneration of the nerve fibers.

2. In most cases of Bell's palsy there is little or no degeneration of the facial nerve fibers and satisfactory recoveries almost always occur in these cases. However, in cases where nerve degeneration does take place, recovery is usually incomplete and often associated with unsightly facial appearances and movements.

3. Early detection and treatment of a degenerating facial nerve should result in improved prognosis for recovery of satisfactory function. Electrical testing, particularly the nerve excitability test, has so far proved to be the simplest, most objective and most reliable way for detecting early degeneration and also for prognosticating the degree of recovery. The nerve excitability test is well supplemented by EMG and the findings on physical examination.

4. Surgical decompression of the mastoid portion of the facial nerve and its vascular supply should prevent further degeneration in nerves which are demonstrated to be losing their excitability, and should facilitate regeneration of already degenerated fibers. The earlier the decompression operation can be done in cases showing early signs of nerve degeneration the greater should be the benefits from the operation. The potential benefits would seem to far outweigh the minimal hazards of this rather standarized otological procedure.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
WILLIS E. BROWN, M.D., Professor, and Chairman
STACY R. STEPHENS, M.D., EDITOR

Primary Cesarean Section in the Multigravid Patient

W. Ragon Thompson, M. D.,* Stacy R. Stephens, M. D.*

Relatively few papers have been published regarding the problem of casarean section in the multigravid patient. Several instances at the University of Arkansas Medical Center in recent years have brought to our attention the necessity for close observation of the multigravid patient for possible feto-pelvic disproportion. The patient who has had a previous spontaneous vaginal delivery may not necessarily be expected to accomplish this with each succeeding delivery. We thus felt it would be useful to review our cases of cesarean section in the multigravid with special emphasis on feto-pelvic disproportion.

MATERIALS AND METHODS

Charts of five hundred and twenty-seven patients who underwent cesarean section at the University of Arkansas Medical Center from January, 1964 through December, 1967, were reviewed. Of special interest were the multigravid patients who had primary cesarean sections, especially those sectioned for feto-pelvic disproportion. Any patient who had previously been delivered of a full-term infant was considered multigravid.

RESULTS

The five hundred and twenty-seven cesarean sections carried out during the 4 year period of study represented 6.2 per cent of our 8,518 deliveries. Two hundred and fifty-six sections (49 per cent) were for primary indications. Of these, one hundred and forty-two (27 per cent) were in patients who had delivered at least one term infant.

Indications for cesarean sections in multigravid patients are listed in Table I. Hemorrhage was the most common indication and accounts for 27 per cent of sections.

TABLE I
INDICATIONS FOR CESAREAN SECTION IN MULTIGRAVID PATIENTS

HEMORRHAGE			38
Placenta Previa		35	
Abruptio Placentae		3	
DYSTOCIA			37
Feto-pelvic Disproportion		22	
Malposition		14	
Face	10		
Breech	4		
Uterine Dysfunction		1	
MEDICAL INDICATIONS			23
Carcinoma Cervix		14	
Rh Isoimmunization		4	
Toxemia		3	
Diabetes Mellitus		1	
Chronic Hypertension		1	
OTHER OBSTETRICAL COMPLICATIONS			44
Transverse Lie		18	
Prolapsed Cord		12	
Premature Rupture Membranes		10	
Rupture Uterus		2	
Fetal Distress		1	
Repaired Incompetent Cervix		1	
TOTAL			142

Dystocia was the second most common indication (26 per cent) and included twenty-two patients with feto-pelvic disproportion, fourteen instances of abnormal presentations, and one patient with abnormal uterine contractions. Of the twenty-two patients with feto-pelvic disproportion, sixteen had infants larger than their previous children. Seven of the thirty-seven patients had had previous difficult deliveries at this institution. The other thirty patients had no recorded difficulty by history. These thirty-seven patients gave a history of twelve fetal losses in one hundred and thirty previous deliveries. However, it was difficult to interpret these losses without knowledge of the cause of previous fetal death.

In the present study, four of thirty-seven infants

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were lost. Three were stillbirths and included a hydrocephalic and an abruptio placentae. Another infant died shortly after delivery. There were thirteen patients who had previously delivered only one infant. Six of the studied babies were larger and four were smaller than previous ones. All four of the latter presented by the face. X-ray pelvimetry was done in twenty-seven patients and seemed to play a helpful role in deciding the method of delivery. However, in ten patients there appeared to be a delay in recognition of the dystocia.

Medical indications for cesarean section included Rh isoimmunization, toxemia, diabetes mellitus, chronic hypertension and carcinoma of the cervix in pregnancy. Other complications of obstetrical nature were transverse lie, prolapsed cord, premature rupture of membranes, uterine rupture, fetal distress, and repaired incompetent cervix.

DISCUSSION

Hemorrhage accounted for 27 per cent of cesarean sections performed in our study patients. Other authors have reported incidences of 20 to 45 per cent[1,2,3]. The predominant etiological factor, placenta previa, found in thirty-five of thirty-eight patients was expected in these older, more parous individuals.

A similar incidence (26 per cent) was found for dystocia secondary to feto-pelvic disproportion, abnormal presentations, and uterine dysfunction. Other authors have found dystocia to account for 27 to 59 per cent of indications for primary section in multigravid patients[3,2,1].

Most of the patients with feto-pelvic disproportion had progressively larger infants which finally necessitated operative delivery. Seven patients were known to have had difficulties with previous deliveries. It is unfortunate that more information was not available about these deliveries. However, the high fetal loss (12 in 130) in past deliveries would seem to indicate the existence of some problems in this area. Finally, an unusually large number of face presentations was observed. These generally occured in mothers whose infants were smaller than previous ones. We would concur with Sogolow and Friedman that the term "tried pelvis" is to be condemned. Rather the individual patient must be evaluated for each pregnancy in view of the existing circumstances taking into account such factors as previous difficult delivery, abnormal presentation, clinical estimation of fetal weight, and size of the pelvis. We have found x-ray pelvimetry quite useful in this institution, and, although it must be combined with clinical judgement, we feel it often obviates a longer trial of labor when there is a question of feto-pelvic disproportion.

Patients having or suspected of having carcinoma of the cervix in pregnancy numbered fourteen. Our management of these patients whose Papanicolaou smears showed abnormal cells has been previously outlined[5]. Biopsy and conization of the cervix are used to confirm an impression of carcinoma in situ or invasive carcinoma and to certify the extent of the former. Although we do cervical biopsies after 34 weeks gestation, we hesitate to perform conization because of the possibility of delivery through an infected, healing cervix. Instead, those patients initially seen after this period of gestation who have no tissue diagnosis or one of carcinoma in situ are delivered by classical cesarean section. Conization is carried out at 4 to 6 weeks post partum. Six patients in this group had total abdominal hysterectomies after section because of carcinoma in situ.

The observed medical and obstetrical indications which led to abdominal delivery were those which one might expect in older multigravid patients.

SUMMARY

Review of five hundred and twenty-seven cesarean sections over a 4 year period at the University of Arkansas Medical Center showed that one hundred and forty-two (27 per cent) were carried out in multigravid patients for primary indications. Hemorrhage and dystocia accounted for 53 per cent of these indications. A plea was made for individual evaluation of each pregnancy in the multigravid patient.

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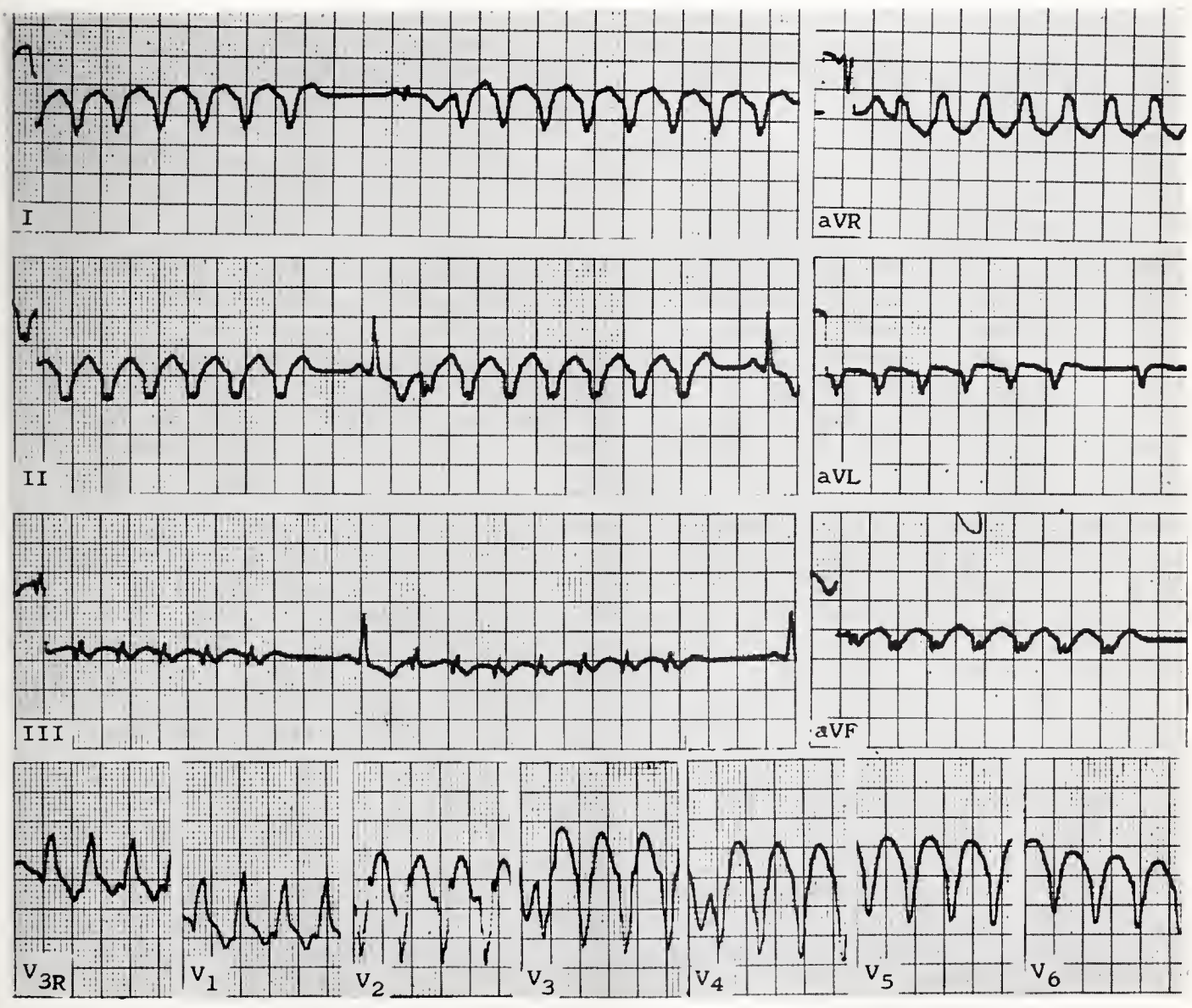
ELECTROCARDIOGRAM OF THE MONTH

AGE: 46 SEX: Male BUILD: ___ BLOOD PRESSURE: 120/90

CARDIAC DIAGNOSIS: Acute Myocardial Infarction
OTHER DIAGNOSES: None
MEDICATION: None
HISTORY: Chest pain 15 days previously. Sudden rapid heart rate.

ANSWER ON PAGE 98



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

PUBLIC HEALTH AT A GLANCE

Public Water Supplies

Food, water and air; three major ingredients necessary to sustain human life. Probably no one item is more important than the other. However, attention in this article will be directed to water; specifically public water supplies.

Approximately 59% of the total population of the State of Arkansas is served by 348 municipal and public water systems. Plans and specifications for construction of municipal and public water systems are approved by the Bureau of Environmental Engineering of the State Health Department. Many hours of detailed study and review must be carried out before the stamp of approval goes on a set of plans.

The treatment plant is the alpha of the water supply system. It is here that the true engineering skill is first utilized. Care must also be taken that cross connections do not occur in the distribution system and that adequate pressures are maintained throughout the system by proper sizing of pumps and lines. Specific chemical treatment and filter media must be utilized in some water supplies. All surface water must be treated to remove harmful bacteria, turbidity, color, taste and odor producing substances.

Seventy-two per cent of all municipal and public water systems in the State use wells as the water source. While only 14% use surface waters as the source, these surface supplies serve the greater portion of our population.

Only 38 public water supplies in the state do not require some type of treatment. Well supplies generally require less treatment than surface supplies, however, special chemical treatment is often necessary in some well water for the removal if iron, manganese and hardness producing chemicals.

Highway signs stating "WATER SUPPLY APPROVED, STATE HEALTH DEPARTMENT" are issued in accordance with the policies and proceedures adopted by the Arkansas State Department of Health, and Arkansas Water Works and Pollution Control Conference. These signs are issued to cities that make application for the signs and receive an acceptable rating.

The rating surveys of the water works systems and other pertinent factors are made by the Bureau of Environmental Engineering for compliance with the following criteria:

1. Compliance with the regulations of the department pertaining to Public Water Supplies.
2. The responsible person having supervision over the water utility must hold a current license (temporary or limited licenses will not qualify) issued in accordance with Act 333 of the 1957 General Assembly of the State of Arkansas.
3. Compliance with the Public Health Service Drinking Water Standards for bacteriological quality for the last six months period.
4. Effective enforcement of a Plumbing Code which is equal to the State Code.

Forty-two municipalities in the State have approved water supply signs. These few cities have "gone the extra mile" to provide optimun protection for their citizens. This does not imply that those municipalities who do not have approved water supply signs are not providing safe water to the water users. These cities have not, for one reason or another, been able to meet all of the high standards set forth.

During 1966-67, thirty-three new water systems were built in Arkansas serving 11,158 people.

The goal of the State Health Department is to bring all public water supplies in the State up to the U. S. Public Health Service Standards, and to have every citizen of our State assured of a safe water whether it is a public supply of from his own private well.

TABLE I
PUBLIC WATER SUPPLIES OF ARKANSAS
STATISTICAL ANALYSIS

	1967
Public Water Systems	348
Public Water Supplies from Wells	232
Public Water Supplies from Surface (Lakes & Rivers)	80
Public Water Supplies from Springs	16
Public Water Supplies Receiving Some Type of Treatment	310
Public Water Supplies Receiving Chlorine Treatment	283
Public Water Supplies Receiving Filtration	167
Public Water Supplies Treated for Iron Removal	94
Public Water Supplies Treated for Softening	15
Public Water Supplies with 1.0 PPM Fluoride	72
Industrial Water Supplies	39
Parks & Recreational Area Water Supplies	31
Institution Water Supplies	18
Summer Camps Water Supplies	59
Population Served	1,050,000

NEW WATER SUPPLY SYSTEMS
July, 1966 - July, 1967

1. Alicia
2. Bassett
3. Bellefonte
4. Ben Lomond
5. Biggers
6. Cash
7. Cushman
8. Diaz
9. East Camden
10. Gum Springs
11. Hattieville
12. Hickory Ridge
13. Keo
14. Leola
15. McDougal
16. Menifee
17. Mitchelville
18. Montrose
19. Mount Holly
20. Oil Trough
21. O'Kean
22. Omaha
23. Oppelo
24. Portia
25. Peach Orchard
26. Reyno
27. Russell
28. Sedgwick
29. Sherrill
30. South Crossett
31. Tinsman
32. Tucker
33. Ulm

Exchange Transfusion and Hemodialysis in *Clostridium perfringens* Sepsis After Illegal Abortion

S. F. Forsberg (Renströmska sjukhuset, Göteborg, Sweden), E. Klintskog, and A. Tornberg
Nord Med 79:151-155 (Feb 1) 1968

Within hours of the appearance of postabortal gas gangrene infection with hemolysis and renal failure, a patient received antibiotics and steroids, and exchange transfusion was started. The patient survived the acute septicemic phase; renal failure with anuria persisted and was treated by hemodialysis. Renal function became normal. The paient recovered completely and 15 months after the onset of illness, gave birth to a healthy child; pregnancy and delivery were normal.

Abnormal Sleep Rhythms in Mongol Babies

L. Goldie et al (N. R. C. Robertson, Institute of Child Health, Hammersmith Hosp, London)
Lancet 1:229-230 (Feb 3) 1968

Characteristic changes in the electroencephalogram (EEG) of newborn mongols are described. The period of non-rapid eye movement (non-REM) sleep is considerably longer and the EEG tracing during this phase, though episodic, is less clearly so than in the normal, and more irregular in its periodicity with more low-amplitude slow-frequency activity. Sharp waves and frontal humps were not seen in non-REM sleep. Body movements are more striking in both phases of sleep, particularly in the non-REM stage.

EDITORIAL

New Light on Sex Hormones

Alfred Kahn, Jr., M. D.

From the Hospital de la Pitie of Paris comes an interesting report on human sexual differentiation. The report by Mauvais - Jarvis, Floch and Bercovici* specifically deals with the two pathways of testosterone metabolism. One pathway leads via androstenedrone, five-androstenedrone to androsterone, the other pathway leads from testosterone to five androstanolone to five androstanediol; the former have a keto group (C=O) and the latter a hydroxyl (C—OH). The degree of the conversion of testosterone to one pathway or the other depends on the bodies enzymes present in the liver and other extra-gonadal tissues. In normal males of the age of puberty and beyond, the normal pathway for testosterone is to five androstanediol. Pre-pubertal boys and girls metabolize testosterone to five androsterone. Thus at puberty, enzyme changes occur in the tissues of boys which radically alter testosterone metabolism. Hypogonadal males, the testosterone output is defective; if these patients are treated with testosterone, the yield of five androstanediol is similar to normal males. At puberty, females have an ovarian secretion of estrogen but the relationship to testosterone is unclear because hypogonadal females have a more feminine pattern of testosterone metabolism than do girls with normal estrogen output: the authors postulate ovarian androgens early in puberty increase to five alpha reduction of testosterone in normal girls, while later on when in these girls, the ovarian estrogens would lower this type of enzyme activity and lead to the formation of "the feminine metabolic pattern of testosterone".

The syndrome of testicular feminization is very interesting. Mauvais-Jarvis et al state that in this condition there may be adequate supplies of testosterone and yet feminization occurs, and this may occur even if large amount of exogenous testosterone is administered. The interesting fact here is that testosterone is largely metabolized to five-androsterone which is the "feminine pathway" instead of along the normal "masculine pathway"; this in turn seems to be the result of altered enzyme activity: a defect of Δ-4-reductase or a high 17 B-hydroxysteroid dehydrogenase.

If human chorronic gonadotrophin hormone is administered to normal rules or hypogonad or males with the feminine syndrome, nothing happens to testosterone metabolism. If there is a gonadotrophin deficiency in young males, H. C. G. will change testosterone metabolism to the normal male pattern.

Horton & Neisler also publishing in the Journal Clinical Endocrinology (Vol. 28, p. 479 April 1968) reviewed their work on "Plasma Androgens in Patients with Polycystic Ovaries." Their studies were aimed at determining in patients with polycystic ovaries the amount of plasma testosterone, and androstenedrone, as well as peripheral conversion of androsterone to active androgens. They studied eight patients using radio-isotope techniques. Horton and Neisler state that in normal females that androstenedrone is the major source of testosterone, and since the ovary secretes only minimal amounts of testosterone, the main source is the tissue conversion of certain substances to testosterone. Polycystic ovary syndrome (Stein-Levinthal) is characterized by abnormal menses, normal seventeen ketosteroids, and normal or elevated gonadotrophic hormone levels. In polycystic ovary syndrome and airsutism the plasma testosterone and its precursor androstenedrone are elevated; the rate of conversion of androstenedrone to testosterone is normal and the metabolic

* Journal Clinical Endocrinology, Vol. 28, p. 460, April 1968

clearance of testosterone is normal in this disorder. The authors postulate that the source of increased testosterone and its precursor is the adrenal cortex rather than the polycystic ovaries—which is surprising.

In general, these studies on sex hormones extend and catalogue or knowledge about some heretofore puzzling aspects of intersex situations and normal masculinity.

MEDICINE IN THE NEWS

WILLIS BROWN ELECTED PRESIDENT

Willis Brown, the new president of the American College of Obstetricians and Gynecologists, today called on his colleagues to become "the primary physicians for women" during his inaugural address at the College's 19th annual meeting here.

"We must relate not only to this individual woman and her organic disturbance but to her husband and her children . . . as a compassionate physician, interested in her total health and welfare and her adjustments to the demands which illness have imposed on this woman and indirectly imposed upon her entire family," said Dr. Willis E. Brown, professor and chairman of the Department of Obstetrics and Gynecology at the University of Arkansas Medical Center.

The Arkansas physician who for the next year will serve as spokesman for the 11,000 member national society.

Dr. Brown traced the history of the Society from

Physicians who served obstetrical and gynecological residences under Dr. Willis E. Brown, professor and chairman of Obstetrics-Gynecology at the University of Arkansas Medical Center, presented him with the keys to a new automobile at a testimonial dinner in Chicago this month. The dinner, attended by 40 of about 100 former residents who have served under Dr. Brown at the Medical Center, was held during the 19th annual convention of the American College of Obstetricians and Gynecologists. Dr. Brown is president of the College.

a small local group which met in Boston in 1861 to the development of state and regional organizations to the national organizational meeting in St. Louis in 1944. This national group subsequently received formal recognition from accrediting boards and medical groups as "the spokesman for this major discipline of medicine," he said.

Dr. Brown next turned to the future role of the Society and threaded throughout this major portion of his address was the concern for the whole woman and her family.

In outlining a goal of quality medical care for women, both in private offices and in third-party payment programs, he said that "quality involves more than the laying on of hands; it requires the involvement of the individual physician and his paramedical personnel in the personal life of this patient."

THE MONTH IN WASHINGTON

Washington, D. C. — The federal government has established a new agency and appointed two new advisory committees in the health care field.

The new agency is the National Center for Health Services Research and Development. The committees are:

1. The Medical Assistance Advisory Council that will advise the secretary of Health, Education and Welfare on matters relating to federal-state medical aid programs.

2. A panel to give the social security commissioner advice on experiments to find new methods of reimbursing hospitals and physicians for health care under medicare and other federal health programs.

Health, Education and Welfare spokesmen said the new center will work with universities, industry, hospitals, practitioners and research institutions to seek new ways of delivering health care, was authorized by Congress last year at the Johnson administration's request.

"The ultimate goal of the center is to aid practitioners and institutions involved in health services to improve the distribution and quality of services and to make the best possible use of manpower, funds, and facilities," said Dr. Philip R. Lee, assistant HEW secretary for Health and Scientific Affairs.

The immediate goals of the center were listed as:

—More efficient utilization of health personnel, including the development of new types of health workers at the professional, technical and auxiliary levels.

—Increased productivity and better management of all elements of the medical care system to improve quality and moderate rapidly rising costs.

—Technological innovation, for immediate application, to achieve costs reduction and quality improvement.

—To survey and analyze health systems, including costs and financing and to test new concepts and systems of health care delivery.

—To recruit, train and develop personnel for health services research, including the establishment of regional, non-Federal centers for health services research and training.

—Collection and correlation of existing information on health services delivery for planning and organization design.

—Initiation of systems' studies of institutional design, construction, equipment and maintenance and support construction of cost-saving innovations.

Director of the center, which is under the newly created Health Services and Mental Health Administration, is Dr. Paul J. Sanazaro, who had directed education and medical care research for the Association of American Medical Colleges since 1962.

HEW said the advisory council would be consulted on program development and practical operational problems involved in Medicaid (Title XIX of Social Security). Such programs are in operation in 38 states, Guam, Puerto Rico and the Virgin Islands. Rashi Fein, Ph. D., a chief economist at the Brookings Institution, was named chairman of the 21-member council which includes six physicians:

John B. Farley, Pueblo, Colo.; Thomas B. Georges, Pennsylvania health and welfare official; Amos N. Johnson, Garland, N. C.; Maynard Shapiro, Chicago, president-elect of the American Academy of General Practice; George W. Slagle, Battle Creek, Mich., chairman of the American Medical Association's Council on Medical Service, and Donald Smith, public health professor at the University of Michigan.

The Social Security Administration said the reimbursement panel would review proposals for experiments submitted by institutions and individuals in the health care and health insurance fields. After such reviews, it will be asked to re-

commend the ones it believes to have the greatest potential.

Nathan J. Stark, a Kansas City, Mo., businessman is chairman of the 17-member group. Four members are physicians: Solomon J. Axelrod, University of Michigan; Thomas W. Georges, Jr., Pennsylvania welfare official; Donald R. Hayes, Springfield, Mass. and Pierre J. Salmon, San Mateo, Calif., county public health and welfare official.

* * *

The American Medical Association urged that Congress appropriate maximum amounts for support of medical education.

The AMA position was outlined by Dr. C. H. Williams Ruhe, director of the AMA's division of medical education, at a hearing of a House appropriations subcommittee.

"We recognize the present concern of the Congress and the nation for an overall reduction in federal expenditures," Dr. Ruhe said. "However, we believe that the urgent need for more physicians merits the funding, to the fullest extent possible of legislation supporting medical education. .

"An urgent need exists in this country for more physicians to meet the health care needs of the American public. This need can only be met effectively by a major increase in the capacity of American medical schools to educate more physicians."

Dr. Ruhe noted that Federal aid to medical schools under the proposed Health Manpower Act of 1968 would not become available before 1970. Therefore, he said efforts must be made to secure the essential immediate increase in financial support through increased appropriations under existing law. He listed the Health Professions Educational Assistance Act, the Health Research Facilities Construction Act, the Medical Act, and the general research support authority of the National Institutes of Health.

* * *

Gov. Nelson Rockefeller of New York and two other witnesses at a Senate subcommittee hearing supported national compulsory health insurance as a solution of the problem of rising health care costs.

The other witnesses were Olcott D. Smith, chairman of Aetna Life and Casualty Company, who expressed belief that private companies could work with the government effectively on such a program, and economist Victor Fuchs.

But Wilbur J. Cohen, acting secretary of Health, Education and Welfare who favored the plan 20 years ago, said he now believes the government should move on other fronts. He said it would be difficult—a "monumentable task"—at this time to achieve a workable and acceptable program of compulsory national health insurance. He did not foresee the United States following the pattern of European nations in adopting a monolithic central health system for the entire nation. He said this country is too large for a single plan but that the benefits under any various plans adopted should be relatively uniform for all Americans.

Cohen said first priority now should be given maternal and child health programs. He listed as other "must" programs the expansion of medical manpower and health facilities and the continued investment in health research.

Sen. Abraham Ribicoff (D., Conn.), chairman of the subcommittee holding hearings on health care costs, also said that the emphasis now should be on more immediate solutions. He said that his experience with the fight over medicare had convinced him that it would be a long time before Congress would accept compulsory national health insurance.

He said that the first week of the hearings "made clear that a health care system in America must include everyone—public and private organizations, insurance companies, the Blues, the voluntary hospitals, nursing homes, medical societies, individual private practitioners, those who practice medicine in groups, and state, local and federal agencies."

* * *

Manufacturers of oral contraceptives are being asked by the Food and Drug Administration to revise uniform labeling for the products to reflect findings from research in Great Britain that there is an association between the use of oral contraceptives and thromboembolic diseases.

Dr. Herbert L. Ley, Jr, director of the FDA's Bureau of Medicine, notified the manufacturers of the publication of the British reports in the April 27 issue of the British Medical Journal. He called the companies to a Washington meeting for discussion of "prompt revision of uniform labeling."

Proposed labeling changes, based on preliminary results and unofficial reports of the British findings, had been submitted to U. S. manufacturers by the FDA last month.

The proposed new FDA labeling would reflect the findings of the British studies and would be aimed at prescribing physicians, an FDA spokesman said.

MEDICAL CAREER PLANS OF NATIONAL MERIT SEMIFINALISTS AND OF REPRESENTATIVE COLLEGE FRESHMEN

The semifinalists in the National Merit Scholarship program represent the top 1 per cent of all students graduating from high school in the United States. The percentage of 1966 National Merit Semifinalists making a pre-college choice of a medical career was more than double that of all entering college freshmen making such a career choice. Listed in Table 1 are the percentages of National Merit Semifinalists and of entering college freshmen who indicated a preference for a medical career.

TABLE 1
MEDICAL CAREER CHOICES OF 1966 NATIONAL MERIT SEMIFINALISTS vs. ENTERING COLLEGE FRESHMEN

	Males		Females		Total	
	No.	%	No.	%	No.	%
National Merit Semifinalists*						
Aiming for medicine	779	8.9	332	6.1	1,111	7.8
Aiming for other careers	8,002	91.1	5,134	93.9	13,136	92.2
Total	8,781	100.0	5,466	100.0	14,247	100.0
Representative College Freshmen†						
Aiming for medicine	5,943	5.3	1,149	1.2	7,092	3.4
Aiming for other careers	106,385	94.7	93,388	98.8	199,773	96.6
Total	112,328	100.0	94,537	100.0	206,865	100.0

* Source: 1966 Annual Report of the National Merit Scholarship Corporation, Evanston, Illinois. Data obtained from Table 7 on page 26.

† Source. *National Norms for Entering College Freshmen— fall 1966.* (ACE Research Reports Volume 2, No. 1, 1967, Washington, D. C.). Data derived from pages 6, 13, 20 and 46. Since the published career choice data include both medicine and dentistry under the heading of "Doctor (M. D.)," the published data were corrected by a factor of 71.5 percent to obtain the college freshman medical career choice figures shown above. The factor of 71.5 per cent was obtained from a special study of a representative sample of 9,330 entering 1966 college freshmen, which indicated that of the 404 individuals aiming for medicine or dentistry, 289 or 71.5 per cent were aiming for medicine.

In comparing the 2 groups by sex, the semifinalists and the representative college freshmen, it can be seen that for every 5 men in the total freshman group electing medicine there were 9 male semifinalists choosing this career. For women the differential was even more striking, with only 1 female college freshman for every 6 female semifinalists seeking a medical career.

Followup studies of National Merit Scholars (who represent the top 10-20 per cent of the National Merit Semifinalists) indicate that approximately 10 per cent of the 1,643 men and 5 per cent of the 493 women, or a total of 9 percent of all Merit Scholars then enrolled in a graduate or professional school were pursuing the study of medicine.[1] Studies of college students in general reveal

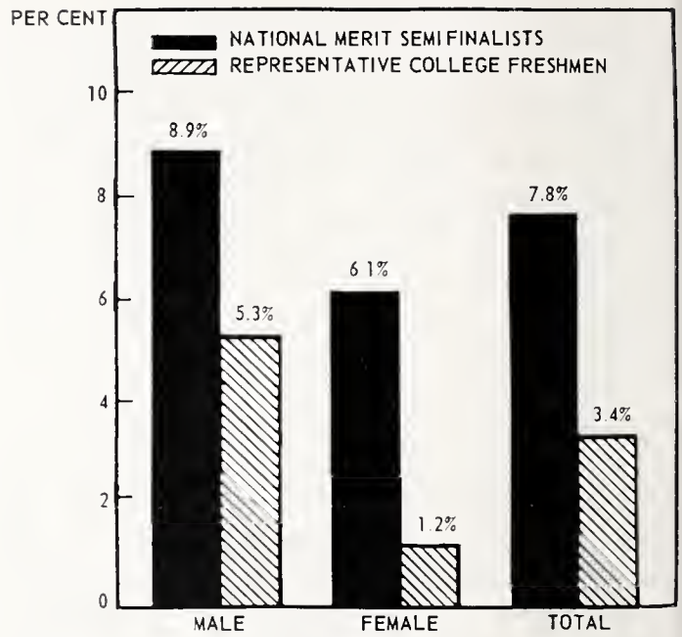


FIGURE 1
Comparison of medical career choices of 1966 national merit semifinalists with representive entering college freshmen.
Source: 1966 Annual Report of the National Merit Scholarship Corporation, Evanston, Illinois. Data obtained from Table 7 on page 26.

that approximately 4 percent of all U. S. college graduates apply to medical school and approximately 2 per cent enter.[2]

---

1. "Progress of the Merit Scholar: An Eight Year Followup" by R. C. Nichols and A. A. Astin. NMSC Research Reports, Vol.1, No. 4, 1965, pg. 7.
2. Wolfle, D. Medicine's Share in America's Student Resources. *J. Med. Educ.*, 32:10-16, October, Part 2, 1957.

ANSWER—Electrocardiogram of the Month

RATE: Approximately 160 RHYTHM: Long bursts of ventricular tachycordia.

P-R: 0.14 sec. QRS: 0.07 and 0.12 sec. Q-T: ...

SIGNIFICANT ABNORMALITIES:

Long runs of rapid, wide ventricular complexes. Normal beots consistent with ocute onteriar infarction.

INTERPRETATION: Abnormal

Long bursts of ventricular tachycardio. Nodal tochycardia with right ventricular conduction defect a definite possibility.

THINGS TO COME

BIG SKY MEDICAL POW-WOW

The Cascade County Medical Society is sponsoring a symposium on August 15, 16, and 17, 1968 in Great Falls, Montana. The Big Sky Medical Pow-Wow will be held on the campus of the College of Great Falls. The symposium will have internationally known speakers and is approved for 11½ hours prescribed credit AAGP. The registration fee is $10.00. There will be entertainment provided for the doctors and their families. For further information contact Dr. Robert E. Wynia, 203 20th Street, South, Great Falls, Montana.

PERSONAL AND NEWS ITEMS

Dr. Rainwater Speaks at Meeting

Dr. Sloan Rainwater of El Dorado spoke at a recent meeting of the El Dorado Lions Club. He discussed the lack of discipline and its effect on the American society of today.

Dr. Petty Speaks to Chemistry Class

Dr. Richard C. Petty of Star City recently addressed the chemistry class at Star City High School. Some of the subjects discussed were the new experimentation in the field of chemistry and the courses required for a degree in medicine.

Doctors Host Meeting

Dr. Ross Van Pelt and Dr. R. A. Etherington of Eureka Springs were the co-hosts for the 9th Council District Spring Scientific Meeting which was held on June 1st in Eureka Springs. In addition to the scientific session, doctors were invited to play golf at the country club and a banquet was held that evening.

Dr. Townsend Named Consultant

Dr. Thomas E. Townsend of Pine Bluff has been named a consultant to State Head Start programs by the American Academy of Pediatrics. The position involves the reviewing of medical aspects of Head Start applications and meeting with local planning committees. This is a new program through the Academy and in co-operation with the federal Office of Economic Opportunity.

Dr. Matthews Attends Seminar

Dr. Robert Matthews of Little Rock attended a Seminar on Hypnosis in Little Rock in May. Dr. Matthews is president of the Arkansas Society of Clinical Hypnosis. The two day seminar was open to physicians, dentists, psychologists and other qualified clinicians. Two noted doctors from out-of-state conducted the seminar. One was Dr. T. E. A. von Dedenroth of Tucson, Arizona. He is a specialist in internal medicine who deals mainly with psychosomatic medicine and hypnotherapy. The other is Dr. Erik Wright, professor in the department of psychiatry and psychology at the University of Kansas.

Dr. Albright Speaks to Kiwanis Club

Dr. Spencer D. Albright, III, of Fayetteville spoke at the meeting of the Fayetteville Kiwanis Club in May. He discussed the sun's effect on skin and showed film slides in conjunction with his talk.

Psychiatric Society Elects Officers

Dr. Richard H. Sunderman of Little Rock has been elected president of the Arkansas Psychiatric Society. Dr. Henry Hearnsberger of Little Rock was elected secretary and Dr. Henry H. Good of Little Rock was elected treasurer.

Dr. Freeland Expanding Clinic

Dr. James Freeland of Star City is adding 2,150 square feet of space to his clinic. He is expanding

his medical service and is adding a wider range of specialized equipment. The clinic will also be large enough to accommodate several physicians.

Doctors Participate In Technologists Meeting

Dr. Frank M. Lockwood, president of the Sebastian County Medical Society, welcomed the 30th annual convention of the Arkansas Society of Medical Technologists in May. They held a three day meeting in Fort Smith. Dr. Albert S. Koenig of Fort Smith was toastmaster for the banquet.

Dr. Thicksten Attends Convention

Dr. Jack N. Thicksten of Alma attended the 39th annual Aerospace Medical Association meeting in Miami in May. Dr. Thicksten is commander of an Air Force Reserve medical unit at Little Rock Air Force Base, Arkansas.

Brother of Dr. Samuel Daniel Entering Medical Practice

A younger brother of Dr. Samuel V. Daniel of Conway, Dr. Charles Daniel, is entering medical practice with a clinic in Marshall, Arkansas. Dr. Charles Daniel has just completed his residency and is a graduate of the University of Arkansas School of Medicine.

Dr. Gray Attends Reunion

Dr. E. M. Gray of Mountain Home attended the Golden Reunion program of the University of Tennessee, Memphis, Tennessee. The reunion was held in conjunction with the commencement exercises.

Dr. Underwood Has New Office

Dr. Clyde H. Underwood of Clarksville is the first doctor to move into the newly acquired doctors' building at the Clarksville Hospital. Dr. Underwood is a member of the hospital board.

Dr. Siddon Joined Drs. Owens and Wells

Dr. Gastor B. Owens and Dr. Charles F. Wells of Morrilton have announced that Dr. William H. Siddon of Tennessee has associated with them.

Dr. Sutter Named Director

Dr. L. O'Neal Sutter of Tuckerman has been named as one of the Board of Directors for the J. J. Ambulance Company which is a state wide company.

Dr. Mahoney Elected Chairman

Dr. Paul L. Mahoney, Jr., of Harrison, was elected chairman of the Association of Tumor Clinics for 1968-1969 at the Arkansas Medical Society's annual convention. He will direct all scientific programs with all tumor clinics in the state.

Dr. Saltzman Is Guest Speaker

Dr. Ben. N. Saltzman of Mountain Home was guest speaker at the 20th annual convention of the Arkansas Public Health Association. He spoke on major problems in public health planning. He has served as a county health officer for more than 20 years.

Dr. Grimes Invites Specialist

Dr. H. Austin Grimes of Little Rock invited Dr. Robert B. Winter, clinical assistant professor of orthopedic surgery at the University of Minnesota Hospitals in Minneapolis, as a guest specialist at the Arkansas Children's Hospital to perform a special operation. Dr. Grimes is a member of the orthopedic staff of the children's hospital.

Speakers Bureau Participants

Dr. H. Austin Grimes of Little Rock and Dr. Douglas A. Poindexter of Conway recently represented the Speakers Bureau of the Arkansas Medical Society. Dr. Grimes spoke on "Hobbies and Health" at a meeting of the Silver Charter Chapter of American Business Women's Association on June 25th in North Little Rock. Dr. Poindexter spoke to the Lions Club in Perryville at their meeting on June 17th.

NEW MEMBERS

DR. JOHN R. BROADWATER is a new member of the Sebastian County Medical Society. He was born in Jackson, Mississippi, in 1933 and attended the Millsaps College in Jackson for his

pre-medical education. He then attended Washington University in St. Louis, Missouri, for his medical education. He interned at the Wilford-Hall USAF Hospital, San Antonio, Texas, and also spent part of his residency there. The balance of his residency was spent at the M. D. Anderson Cancer Hospital in Houston, Texas. He was on active duty in the U. S. Air Force from 1956 through 1967. He held a teaching appointment as Chief of Radiation Therapy Residency Program, Wilford-Hall Air Force Hospital and is presently a consultant in radation therapy at the University of Arkansas Medical Center. He is associated with the Holt Krock Clinic, 1500 Dodson Avenue, Fort Smith, Arkansas, and specializes in radiology and radiation therapy.

Another new member of the Sebastian County Medical Society is DR. WALTER D. HAYNES. He was born in 1937 in Fort Smith, Arkansas. He received his pre-medical education at the University of Arkansas and attended the University of Arkansas School of Medicine for his medical education. He graduated in 1963 and spent both his internship and residency at the University of Arkansas Medical Center. Dr. Haynes is associated with Drs. Brooksher, Rogers and Dodd in the practice of radiology at 318 North Greenwood, Fort Smith.

Craighead-Poinsett County Medical Society announces DR. LOUIS R. MUNOS as a new member. He is a native of Little Rock and was born in 1939. He attended Hendrix College and the University of Arkansas for his pre-medical education. He graduated in 1964 from the University of Arkansas School of Medicine and interned at the Duval Medical Center in Jacksonville, Florida. He was a flight surgeon in the U. S. Air Force and spent a year in Viet Nam. He is presently in general practice with an office at 505 East Matthews in Jonesboro, Arkansas.

Another new member of Craighead-Poinsett County Medical Society is DR. DON BIRCH VOLLMAN, JR. He was born in Little Rock in 1934. He attended the Little Rock Junior College and the University of Arkansas for his pre-medical education. He received his degree in medicine in 1959 from the University of Arkansas School of Medicine. He also interned and spent part of his residency at the University of Arkansas Medical Center. The balance of his residency was spent at the U. S. Naval Hospital in Long Beach, California. He specializes in pathology and has an office at 814 Cobb Street, Jonesboro, Arkansas.

DR. WILLIAM TROY RANEY is a new member of Independence County Medical Society. He is a native Arkansan and was born in 1910. He attended the University of Indiana and received his degree in medicine in 1950 from the University of Arkansas School of Medicine. He interned at the Edward Sparrow Hospital in Lansing, Michigan. In 1951 he began his private practice in Heber Springs, Arkansas. He practiced there for three years and then moved to Yerington, Nevada, to practice for four years. In 1959 he moved to Carmichael, California, where he practiced until returning to Arkansas in 1967. He is presently in general practice at the Medical Clinic in Cave City, Arkansas.

Lonoke County Medical Society has added DR. WILLIAM PHILLIP OSBORNE to their membership roster. He was born in Shreveport, Louisiana, in 1938. He attended the Stephen F. Austin State College for his pre-medical education. He attended the University of Texas in Galveston and graduated in 1966 with a degree in medicine. He interned at the Arkansas Baptist Hospital in Little Rock. He is presently in general practice at the England Hospital in England, Arkansas.

BOOK REVIEWS

MODERN TREATMENT, VOLUME 5, NO. 1 — TREATMENT OF HEMORRHAGIC DISORDERS, Various Authors, Edited by Oscar D. Retnoff, M. D., pp. about 1,500 per year, published bi-monthly, $16.00 per year, by subscription only, published by Harper & Row, New York, 1968.

MODERN TREATMENT, VOLUME 5, NO. 1 — TREATMENT OF DISORDERS OF GROWTH AND DEVELOPMENT, Various Authors, Edited by Roberto F. Escamilla, M. D., pp. about 1,500 per year, published bi-monthly, $16.00 per year, by subscription only, published by Harper & Row, New York, 1968.

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August, 1968

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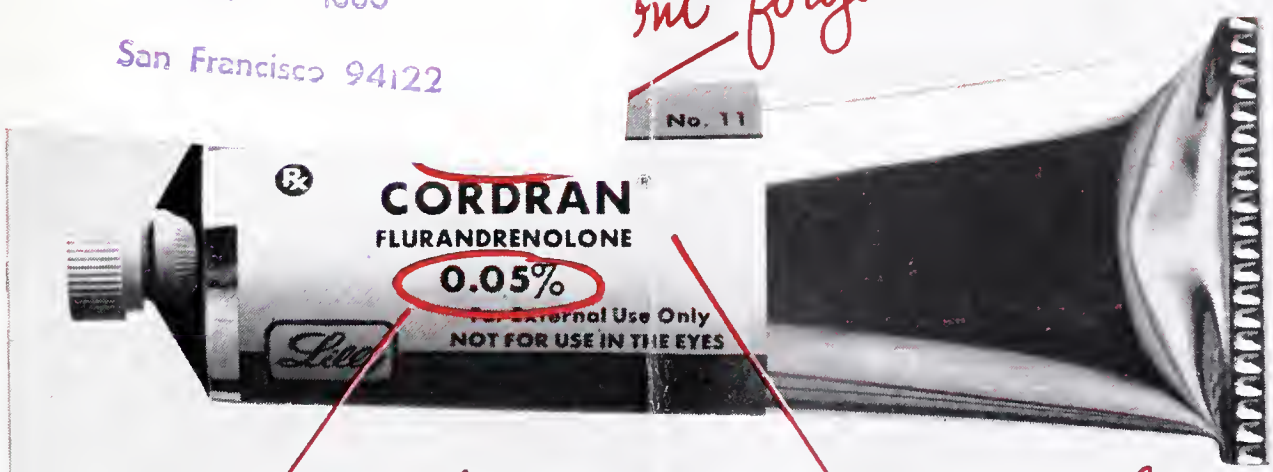

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References:

(1) Siver, R. H.: CMD, *21*:109, September 1954. (2) Frykman, H. H.: Minn. Med., *38*:19-27, January 1955. (3) McGivney, J.: Tex. State Jour. Med., *51*:16-18, January 1955. (4) Quehl, T. M.: Jour. of Florida Acad. Gen. Prac., *15*:15-16, October 1965. (5) Weekes, D. J.: N.Y. State Jour. Med., *58*:2672-2673, August 1958. (6) Weekes, D. J.: EENT Digest, *25*:47-59, December 1963. (7) Abbott, P. L.: Jour. Oral Surg., Anes., & Hosp. Dental Serv., 310-312, July 1961. (8) Rapoport, L. and Levine, W. I.: Oral Surg., Oral Med. & Oral Path., *20*:591-593, November 1965.

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

PUBLISHED MONTHLY UNDER DIRECTION OF COUNCIL

VOLUME 65 • AUGUST, 1968 • NUMBER 3

PAROTID TUMORS

Roger Boles, M.D.*

Neoplasms of the parotid gland rank as one of the most difficult pathological and surgical entities. Why is this so?

1. Parotid tumors are extremely difficult to characterize histopathologically. There is great variability in their appearance and considerable overlap of histological features between some of the tumors. The usual histological criteria of malignancy are often lacking and unreliable.
2. There is often great discrepancy between the histological picture and the clinical course.
3. Because of the intimacy of the facial nerve and the parotid gland anatomically, surgical technique and judgement are rendered much more difficult in managing parotid tumors.

Parotid tumors are generally classified, as are most neoplasms elsewhere, into: (1) supporting or connective tissue tumors and (2) epithelial tumors.[1] Each group is further subdivided into benign and malignant varieties. The first two groups are less often seen than the epithelial tumors and only a few of the more common ones will be dealt with in this paper.

I. *Benign Supporting Tissue Neoplasms*

A. *Lymphangiomas*

This is the most common salivary gland tumor in children. While it is generally not recognized as an actual neoplasm, but rather as a congenital lymphatic ectasia, it traditionally is considered along with the true neoplasms in the parotid and is so included here. These may be localized to the parotid gland or the parotid may be only the uppermost involvement by a more extensive cystic hygroma of the neck. There may be combinations of the features of both lymphangiomas and hemangiomas, which we have called hemangio-lymphangiomas. Spontaneous regression often occurs in these lesions, and surgical intervention should be deferred unless: (1) the lesion undergoes rapid enlargement, (2) the lesion encroaches upon the airway or other vital structures.

Surgical excision of lymphangiomas can be very difficult and tedious, especially in infants and young children. Incomplete excision with multiple recurrences tends to be the rule rather than the exception. Conservative surgical judgement is best exercised in these lesions, lest the surgeon do more harm than good.

B. *Hemangiomas*

These are also included in this outline out of tradition though they are probably congenital extasias and not true neoplasms. These, too, have a tendency to regress in later childhood and should be managed essentially by the same principles applied to lymphangiomas.

C. *Hemangioendothelioma*

This is the most frequent true neoplasm of the parotid in infancy.[2] It is a benign tumor and does not have a malignant counterpart in the parotid gland. It is treated by surgical excision.

D. *Neurofibromas*

E. *Lipomas*

Most of these benign supporting tissue tumors have their malignant counterparts. Histological criteria for malignancy in these tumors are even more difficult to establish with certainty than in the epithelial tumors, and we, therefore, must depend heavily upon the clinical picture and clinical criteria for malignancy. Since sarcomas are quite radio-resistant, wide surgical excision is the treatment of choice, including involved branches of the facial nerve. Lymphomas may occur in the parotid gland and are, of course, best treated by non-surgical means.

II. *Epithelial Neoplasms*

A. *Benign*

*From the Department of Otorhinolaryngology, The University of Michigan, Ann Arbor, Michigan 48104.

Figure 1

Modified Blair Incision

1. mixed tumor
2. mucoepidermoid tumor
3. Warthin's tumor
4. serous (acinic) cell adenoma
5. acidophilic cell (oxyphilic) adenoma

B. *Malignant*

1. squamous cell carcinoma (including lymphoepithelioma)
2. adenocarcinomas
   (a) adenocystic carcinoma
   (b) serous (acinic) cell carcinoma
   (c) acidophilic cell carcinoma
3. malignant mucoepidermoid tumor
4. malignant mixed tumor
5. unclassified carcinomas

85% of parotid tumors are benign and only 15% are malignant. Despite the surgical hazard to the facial nerve, almost all parotid tumors must be operated upon because we usually cannot be sure whether a tumor is benign or malignant.

Several rather outstanding clinical features tend to be associated with malignant tumors of the parotid gland and help to distinguish them pre-operatively from benign tumors:

1. facial nerve paralyses—50% of cases; does not occur from benign tumors
2. pain—50% of cases; may rarely occur in benign tumors
3. tenderness—80% of cases; may also be present with benign tumors

These clinical features of parotid malignancies are extremely important because they alert the surgeon to a more radical surgical approach with sacrifice of the facial nerve, if necessary.

BENIGN EPITHELIAL TUMORS

Mixed Tumors

This is the most common tumor of the parotid gland. It accounts for 65% of all parotid tumors. Mixed tumors are thought to arise from ductile epithelium but may undergo metaplastic change into all varieties of connective tissues as well; hence, the name "mixed tumors". Although these tumors may appear grossly well encapsulated, microscopically they tend to have numerous pseudopod-type extensions out into the surrounding substance of the gland. Therefore, these tumors must be widely excised, usually by total parotidectomy.[3] They should never be needled or biopsied because of the great tendency to local seeding of tumor cells in the biopsy wound or along needle tracts. As with almost all parotid tumors, the best biopsy is an excisional biopsy with liberal removal of surrounding parotid tissue. The facial nerve should seldom, if ever, be sacrificed for mixed tumors or for any benign parotid tumor. Approximately 6% of mixed tumors undergo malignant degeneration.

Mucoepidermoid tumors

The histological definition of this tumor varies considerably from series to series and from pathologist to pathologist. Essentially, they are an admixture of squamous epithelial elements and mucin-producing glandular elements. Foot and Frazell consider all of these tumors malignant, those in which mucin-producing elements predominate being classed as low-grade malignancies and those with squamous epithelial elements predominating being classed as high-grade malignancies.[4] Gray, Hendrix and French use more stringent histological criteria for the mucoepidermoid tumor and in our 58 cases at the University of Michigan, they were unable to predict, by the histological picture alone, which mucoepidermoid tumors would ultimately become malignant clinically.[5] They

did note that none of the tumors which metastasized had a predominance of the mucin-producing elements. Only 3 of this series ultimately behaved malignantly with metastases and local invasion. Mucoepidermoid tumors often have an infiltrative, inflammatory appearance and are usually poorly encapsulated. For this reason they often are mistaken grossly for malignancies. Their tendency to recur, if not completely excised, is similar to that of mixed tumors. Therefore, the treatment of choice is wide excision by total parotidectomy with preservation of the facial nerve.

Warthin's Tumor

This is a benign cystic tumor, characteristically appearing in the tail of the parotid in older men. The tumor has a very characteristic histological picture. We have had no recurrences following excision.

True Adenomas

There are two types: (1) serous or acinic cell adenoma, arising from acinar elements and (2) acidophilic or oxyphylic adenoma, arising from ductile elements. Both of these adenomas are quite rare and have little tendency to recur if excised by parotidectomy.

MALIGNANT EPITHELIAL TUMORS

Squamous Cell Carcinoma

This is the most common malignancy of the parotid gland.[6] The histological picture is usually quite characteristic so that the surgeon can usually proceed with radical excision on the basis of frozen section reports with good reliability. Surgical resection should include sacrifice of any branches of the facial nerve which are clearly involved. Cure rates have been remarkably improved with the routine use of irradiation therapy following surgical resection, regardless of the adequacy of the margins of resections. Poorly differentiated squamous cell carcinomas, including lymphoepitheliomas, are probably best treated with irradiation therapy primarily, after a limited biopsy. These poorly differentiated tumors have a very poor prognosis by any form of therapy.

Adenocarcinomas

Adenocystic carcinoma—also known as cylindroma and adenoidcystic carcinoma. This is the most common adenocarcinoma of the parotid. It is a highly lethal tumor despite the fact that over 20% of cases survive with this tumor five years or more.[7] Although they may appear grossly well encapsulated, these tumors invade extensively and extend microscopically along regional and perineural lymphatics. Metastases to the lungs are frequent. Wide surgical excision followed in most cases by irradiation therapy has produced a rather dramatic improvement in the five year survivals over surgical excision alone, just as with the squamous cell carcinomas.

Serous cell (acinic) adenocarcinoma

This has been a highly lethal tumor in our experience, although less so in other series. It is not radiosensitive; so, treatment is confined to wide surgical excision.

Acidophilic adenocarcinoma

This is also a rather lethal tumor and is treated by wide surgical excision.

Malignant Mucoepidermoid Tumors

These were previously mentioned. In our experience, malignancy in these tumors is only reliably determined by clinical behavior; that is, facial paralysis, pain and tenderness, presence of metastases or obvious invasiveness and rapid growth. These tumors are not very radiosensitive and must be resected widely.

Malignant Mixed Tumors

Approximately 6% of mixed tumors do seem to undergo transition into squamous cell cancer. Metastases from these tumors are almost always as squamous cell carcinoma. Again, the clinical picture is generally more reliable for predicting malignancy and benignity than the histological features.

Unclassifiable Carcinomas

Anywhere from 3-6% of malignant parotid tumors defy histological categorization.

SURGICAL PRINCIPLES OF PAROTID GLAND

1. For almost all parotid tumors, the best biopsy is excisional biopsy, including superficial or total parotidectomy. Limited wedge or needle biopsies have little place in the diagnosis and management of most parotid tumors for these often result in seeding of the tumor and are, in addition, often too small and inadequate for the pathologist to make a definitive diagnosis.
2. The facial nerve should seldom, if ever, be surgically sacrificed in the removal of benign parotid tumors.
3. Branches of the facial nerve which are clearly involved by malignant tumor, however, should be sacrificed in order to get adequate excisional margins around the tumor.

4. Branches of the facial nerve which are either inadvertently sectioned or purposely resected should be repaired or grafted immediately, in almost all cases. Functional results from these immediate reconstructive efforts are much more satisfactory than delayed repairs or substitution procedures such as Fascial slings or XI or XIIth nerve cross-overs.
5. Tumors of the inner or pharyngeal prolongation of the parotid gland should always be removed by the lateral neck approach, not through the mouth and pharyngeal mucosal incisions.[8] Parotid tumors thus presenting as a mass in lateral pharyngeal wall or soft palate are usually more extensive than they initially appear clinically. Furthermore, control of bleeding from the large carotid, jugular and other blood vessels in this region is uncertain or impossible except by wide incisional exposure through the lateral neck.
6. The modified Blair incision is the incision of choice for tumors in the parotid region. (Fig. No. 1) It provides good exposure to the surgical area, it is cosmetically very acceptable, and it can be re-entered and revised easily for second and third stage operations if necessary.
7. The facial nerve should never be sacrificed on the basis of an equivocal frozen section diagnosis of a malignant parotid tumor. If an equivocal frozen section opinion is rendered, the wound should be closed and the report of permanent sections awaited. Many times the pathologist will render an entirely different opinion on a permanent section from that which he ventured on a frozen section. This delay will also give the surgeon a chance to present the problem fully and accurately to the patient and to prepare the patient for a possible facial deformity.

University Hospital

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Vacuum Extraction and Neonatal Jaundice

R. Michaelis, M. Weber and H. P. Bötzelen (Universitäts-Kinderklinik und Poliklinik, Göttingen, West Germany)

Deutsch Med Wschr 93:294-299 (Feb 16) 1968

The incidence of neonatal jaundice (serum bilirubin above 14 mg/100 ml) after vacuum extraction was threefold that of a control group of mature newborns delivered spontaneously. The need for exchange transfusion was six times that in the control group. Every sixth child delivered by vacuum extraction had a serum bilirubin level of at least 10 mg/100 ml and every 14th child of at least 14 mg/100 ml. At least one in 55 children delivered by vacuum extraction may be expected to require an exchange transfusion. Both in the controls and the vacuum extraction group known or possible causes of hyperbilirubinemia had been carefully excluded. The cause of hyperbilirubinemia after vacuum extraction is probably the rapid breakdown of red blood cells in the hematoma produced by the vacuum extraction. This is supported by the finding that the maximal bilirubin level in these children occurred a day earlier and reached a higher level than in the control group.

Nonunion of Pelvis Fractures*
(And How to Field Dress a Deer)

John M. Hundley, M. D., M.S.O.**

The frequence of unstable ununited fractures of the pelvis is difficult to ascertain from the literature. No paper has been printed on this subject, although the author first reported the condition in 1958—first being recognized and surgically corrected in 1949.

All but two non-unions occured in the double vertical fracture described by Malgaigne in 1847. Along with lessor fractures the hemi-pelvis is shoved away in an upward or downward displacement with internal or external rotation of that half of the pelvis and its lower extremity. These may be dislocation through the sacroiliac joint or the symphysis or fractures through the sacrum, ilium or ischio-pubic areas. Of particular importance in the most grossly displaced Malgaigne fracture is rupture of the strong anterior (symphysis) ligament which then permits rupture of the sacroiliac ligaments or fracture of adjacent bone permitting the pelvis to open like a book. The importance of the very strong ligament is well known by the deer hunter. In field dressing a deer if the anterior pubic ligament is cut at the symphysis with a knife and simple pressure applied outward on the hind legs, the entire pelvic basin opens up by rupturing the much weaker posterior sacroiliac ligaments. The completion of field dressing is then most easily carried out. Simply remove the anus, colon, etc., extend the incision through the peritoneum up to the sternum and all abdominal and thoracic contents can be removed in minutes. Try it on the next deer camp—the whole process will take less than five minutes.

Malgaigne, without benefit of x-rays accurately described this grave fracture outlined the details of reduction and treatment. He did not describe non-union of the pelvis but stated that those who survived, in spite of good reduction would end up with a rotated short or long leg unable to walk without crutches—if they could walk at all.

The usual treatment of fractures of the pelvis is still adequate. The majority need only bed rest, wheel chair and crutches until union occurs. Some may require pelvic slings, traction or even casts after reduction.

The ratio of instability in our practice is disproportionately high for no one described or treated the condition prior to the author. Some of these patients have had myelograms and laminectomy but not relief of the pain of the ununited pelvic fracture. It is usually assumed that a pelvis fracture will heal and so the complaints are blamed on something else. Only when more astute investigation of symptoms of the patients with fractured pelves who persist in complaining of pain and radicular symptoms in and about the lumbosacral and sacroiliac areas is made, will we know the true frequency.

I base this on the following:

(1) Seldom is a diligent search made to prove or disprove the presence of instability of fractures of the pelvis. Four x-rays are necessary—an AP view of the pelvis horizontal, vertical, standing on one and then the other leg. In the unstable pelvis all views look different and the contour of the pelvis may be grotesquely changed.

(2) The absence of reference to such a condition in the literature.

(3) With one exception my cases were referred to me because of "vague and unfounded subjective pain". The exception is the case referred by an urologist who was investigating his patient's urinary complaints and noticed different levels of the hemi-pelvis in the x-rays and an extremely awkward hip-dip lurch type cadence. One case initially treated by us went to nonunion and this was a very mildly displaced fracture near the symphysis ilium near the left sacroiliac and through the right sacroiliac joint. He was operated upon six months after his injury. My series excluded fractures of the acetabulum with or without intrapelvic dislocation of

*Similiar presentation has been made to the American Academy of Orthopedic Surgery; The Orthopedic Travel Club; Mid-Central Orthopedic Society; Association of Bone and Joint Surgeons. To be published in The Journal of Bone and Joint Surgery.

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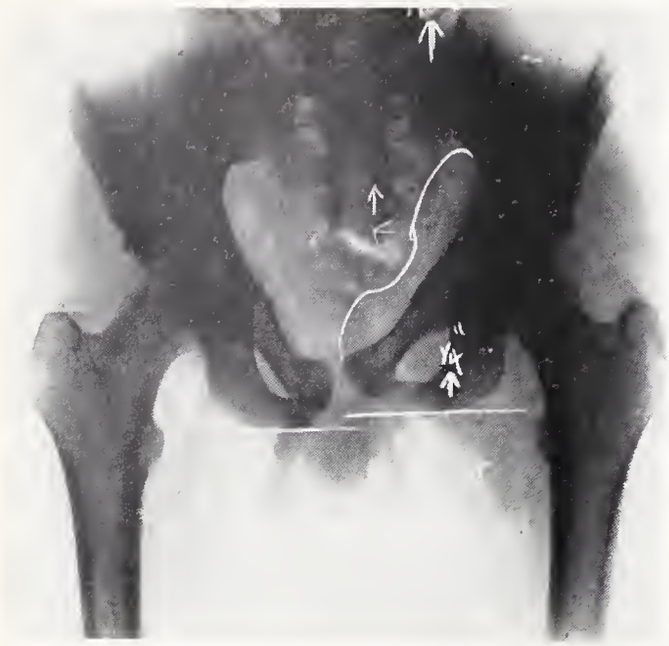
FIGURE 1



Shows weight bearing on both lower extremities in a patient with ununited unstable fracture of the pelvis.

the hip even though we have seen some of these with non-union of the pelvis. They are excluded because that condition alone is very severe and complicated and is a treatise unto itself. Also excluded were insignificant non-unions of rami, ischii, pelvic spines and such.

Operations for ordinary pelvic fractures simply to reduce the fragments or hold the fragments by internal fixation, such as wiring the symphysis are very rarely, if ever, indicated. I see no reason to internally fix an ilium fragment. The non-unions that we saw are disproportionately high as all but one were seen by other specialists before referral to us.

Out of one hundred forty-one fractures of the pelvis there were twenty ununited unstable pelves (four non-unions have been referred since compiling the statistics). Of these twenty, ten have had bone grafts of the symphysis or its adjacent bone and the sacroiliacs or their adjacent bone. All healed and all patients resumed their pre-accident activities. Those not operated upon are still incapacitated and unable to work—all must walk with crutches. Twenty-two percent of the cases (32) were fractures of the Malgaigne type, and of these thirty-two nineteen went to non-union. The remaining non-union was the case we initially treated and it was only mildly displaced initially and in spite of anatomical reduction went to non-union. This astounding 62.5% of non-unions of Malgaigne type fractures of the pelvis should stimulate alertness for this condition.

TABLE I

Severely displaced sacral, ilium, or sacroiliac fracture dislocations	32	22.0%
Primary general anesthetic	6	4.3%
Mortality Retroperitoneal hemorrhage	1	1.4%

The complications of fractures of the pelvis also occur more frequently in the displaced hemipelvis fractures. Those of greatest significance are non-union and severe retroperitoneal hemorrhage, each 8%.

TABLE II
COMPLICATIONS

Unstable-ununited	20	14.8%
Rupture of bladder and/or urethra with extra-visation of urine	8	5.7%
Rupture of other pelvic viscera	4	2.8%
Thrombophlebitis	6	4.2%
Retroperitoneal hemorrhage (with associated ileus)	12	8.5%

A violent direct blow is the mechanism that produces the Malgaigne fracture. But we have observed a 38 year old mother with no known injury complaining of disabling pain over the sacroiliacs and symphysis, who had mild instability proven by the variously positioned AP pelvis views and confirmed as in all cases the past several years with cineradiography. Controls of similiar age with the same or greater number of children, etc., failed to reveal instability. She has received some benefit from a tight corset and

FIGURE 2

Shows the patient bearing weight on the right lower extremity and the alignment of the pelvis is almost anatomical.

FIGURE 3

Shows marked instability and gross mal-alignment of the pelvis with the patient bearing weight on the left lower extremity.

we have not elected to operate her.

Besides the severity of the violence we may speculate that the "double fracture verticale due Bassin" is prone to non-union because (1) when fracture of the hemi-pelvis passes through a sacroiliac joint (which is a true joint) motion occurring during the inevitable movement of the patient during the period of recumbency may prevent solid ligamentous healing due to repititious shearing motion. This is a grossly unstable fracture to begin with and any motion upward on the ischium or medially on the crest of the ilium will cause motion.

(2) It has been pointed out by Charnley that cancellous bone heals very rapidly at points of intimate contact. Like all of us, I had been brought up to believe that cancellous bone was a highly osteogenic substance and that empty spaces between cancellous surfaces would rapidly fill with new bone. Charnley has stated, however, that contrary to this opinion, cancellous bone, when not in close contact fills such gaps only by being encrouched upon by the slow spread of union from the points of contact where it originally started. In other words, in his opinion, a cut (or fracture) surface of cancellous bone does not "throw out" callus as does, say, a fractured femoral shaft. This concept could conceivably offer an explanation for the failure of a double vertical fracture to heal if repititions motion is present in an unstable fracture.

(3) To further substantiate this there was a high frequency of spondylolisthesis (70%) in the ununited cases further contributing to motion.

TABLE III
RESULTS

Satisfactory	121	85.8%
Unsatisfactory (non-union with limp, leg length discrepency and/or pain)	20	14.8%
Pelves grafted	10	50.0%
Resumption of pre-injury occupation	10	100.0%
Pelves not grafted	10	50.0%
Resumption of pre-injury occupation	0	0.0%

Eighty-five percent of the fractured pelves had good results, i.e., healing occurred without gross deformity. Average follow-up is seven years.

The twenty percent considered unsatisfactory were the non-unions. Of these twenty, ten had bone grafts and all of these resumed their pre-injury occupation. The ten not operated upon have resumed no gainful occupation. The four additional non-unions seen have also continued on welfare or social security.

In summary, I do not think this condition is rare and you should prove a fracture of the pelvis has united when a patient persists in complaining of pain. It is easily done with the x-rays of the pelvis.

The treatment of the ununited pelvic fracture consists of closed reduction, with or without long leg casts and struts and/or internal fixation with bone grafting of both sacroiliacs and the anterior pelvis.

Try the five minute field dressing of your next deer on the ground and then hang him up.

The end results of both these procedures is excellent.

Hematuria Associated with Sickle Cell Disease*

John F. Redman, M.D.** and Jack E. Mobley, M.D.***

Although hematuria is more frequently a presenting complaint in a urological type medical practice, all medical practitioners have occasion to encounter the patient with this problem. One of the causes of hematuria in the Negro race is sickle cell trait or disease. Reports of cases of hematuria due to sickle cell abnormalities have been published since 1948. Most of these have appeared in urological periodicals, however. Since three patients with hematuria due to sickle cell trait have been seen in the past few months at the University of Arkansas Medical Center, and since many of our state practitioners live in areas with significant Negro populations, it was thought appropriate to re-emphasize this problem.

Sickle cell disease or sickle cell trait is present in approximately 10 per cent of the Negro population. It has been shown that nephropathies rather than anemia comprise the commonest manifestations of the abnormal S hemoglobin. Hyposthenuria (the inability of the kidneys to produce a concentrated urine) is the most frequent finding. Hematuria occurs in ¾ per cent of patients with S hemoglobin.

The hematuria is most often painless, unilateral, intermittent, and gross; but it may also be only microscopic. Pre-existing disease and mild trauma have been implicated as causative factors in initiating hematuria. The renal lesion which produces hematuria is not readily apparent grossly. Microscopically, there is marked stasis and sickling of erythrocytes in the peritubular capillaries. Papillary necrosis may occur. With increased stasis rupture of the capillaries occurs with resultant hematuria. There is a predilection for the left kidney as the site of involvement, which has been attributed to the vulnerability of its venous return to stasis.

The diagnosis of hematuria secondary to sickle cell disease or trait is based mainly on the exclusion of other causes of the hematuria and the demonstration of S hemoglobin. The sickle preparation is an excellent screen and quite simply done. Aqueous sodium metabisulfite ($Na_2S_2O_5$), 2 grams per 100 milliliters is made up fresh before use. One or two drops of this solution is added to one drop of blood on a glass slide and covered with a cover glass. A control slide is made also, using a drop or two of isotonic saline. The preparations are then examined immediately, at 15 minutes, and at 30 minutes for the characteristic sickling of erythrocytes. A 200 milligram capsule of the sodium metabisulfite is available commercially, which facilitates the preparation of a fresh solution by dissolving the contents in 10 milliliters of water. False negative tests do occur, and the preparation should be repeated several times and followed up with hemoglobin electrophoresis when suspicion persists despite negative findings.

Hematuria occurs much more often due to sickle cell trait than due to sickle cell disease. It should be emphasized that patients with sickle cell trait will seldom have any of the other symptoms or signs commonly attributed to sickle cell disease, i.e., anemia, asthenic habitus, fever, and arthalgia.

Radiographic (intravenous pyelography) signs are not diagnostic but are helpful. Commonly clots will be seen in the renal pelvis and calyces and occasionally will be seen to produce obstruction of the urinary tract. Clots within the collecting system can resemble closely neoplasm or stone. In the presence of unequivocal evidence of sickle cell trait or disease, it is wise to repeat x-ray studies after several weeks before instituting surgical therapy. Radiographic findings consistent with renal papillary necrosis have also been found.

The management of choice consists of observation and supportive therapy. Excessive bleeding requiring transfusion is unusual. Removal of the affected kidney is contraindicated since there is a better than 50 per cent chance that bleeding will recur from the opposite kidney.

SUMMARY

Hematuria encountered in patients of Negro ancestry requires screening for sickle cell disease or trait. In those patients found to have hematuria from this cause, medical management is indicated.

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Studies on Biological Activity of *Rhus striata* ('Manzanillo'): II. Skin Response to Patch Test in Humans

I. de Hurtado (Instituto Venezolano de Investigaciones Cientificas, Caracas, Venezuela)
In Arch Aller 33:209-216 (No. 3) 1968

Of 225 subjects patch tested to *Rhus striata* ('manzanillo'), oleoresin, only 45 came from areas known to be free of manzanillo. The percentage of skin-positive subjects to three oleoresin concentrations—100μl, 10μl, and 1μl/ml—was obtained for each population study group as a means to assess the degree of skin sensitivity. Subjects without a history of Anacardiaceae dermatitis exhibited low sensitivity to manzanillo, whether or not they came from areas where the tree grows. On the other hand, subjects who had suffered previously from Anacardiaceae poisoning were very sensitive to patch tests. The close immunological relationship among Anacardiaceae is supported by cross reactions to manzanillo in subjects who suffered previous dermatitis from other plants of this family.

Sex Differences in the Vectorcardiogram

I. Sotobata, H. Richman, and E. Simonson (Physiology and Hygiene Lab, Univ of Minn, Minneapolis)
Circulation 37:438-448 (March) 1968

In a study of 101 normal men and 102 women (mean age 42.5 and 42.6 years, respectively), significant sex differences were observed in 43 of 64 vectorial items analyzed (initial 0.02 sec., 0.025 sec. vectors, maximal QRS and T vectors, terminal 0.02 sec. vectors in frontal, horizontal, left sagittal planes, and Q, R, S, and T deflections in Frank's, X, Y, Z leads). The initial QRS vectors are oriented for inferiorly and posteriorly in women than in men, the maximal QRS vectors more inferiorly, the terminal vectors more leftward and superior, the T vector more posteriorly and inferiorly. The QRS-T angle is smaller. There is a significant tendency to smaller magnitude of all planar vectors and Q, R, S and T deflections (except Sy) in orthogonal leads in women. Sex differences show up better in the VCG than in the ECG. Separate normal 95 percentile limits for men and women are presented.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 75 SEX: Female BUILD: ..... BLOOD PRESSURE: 170/85

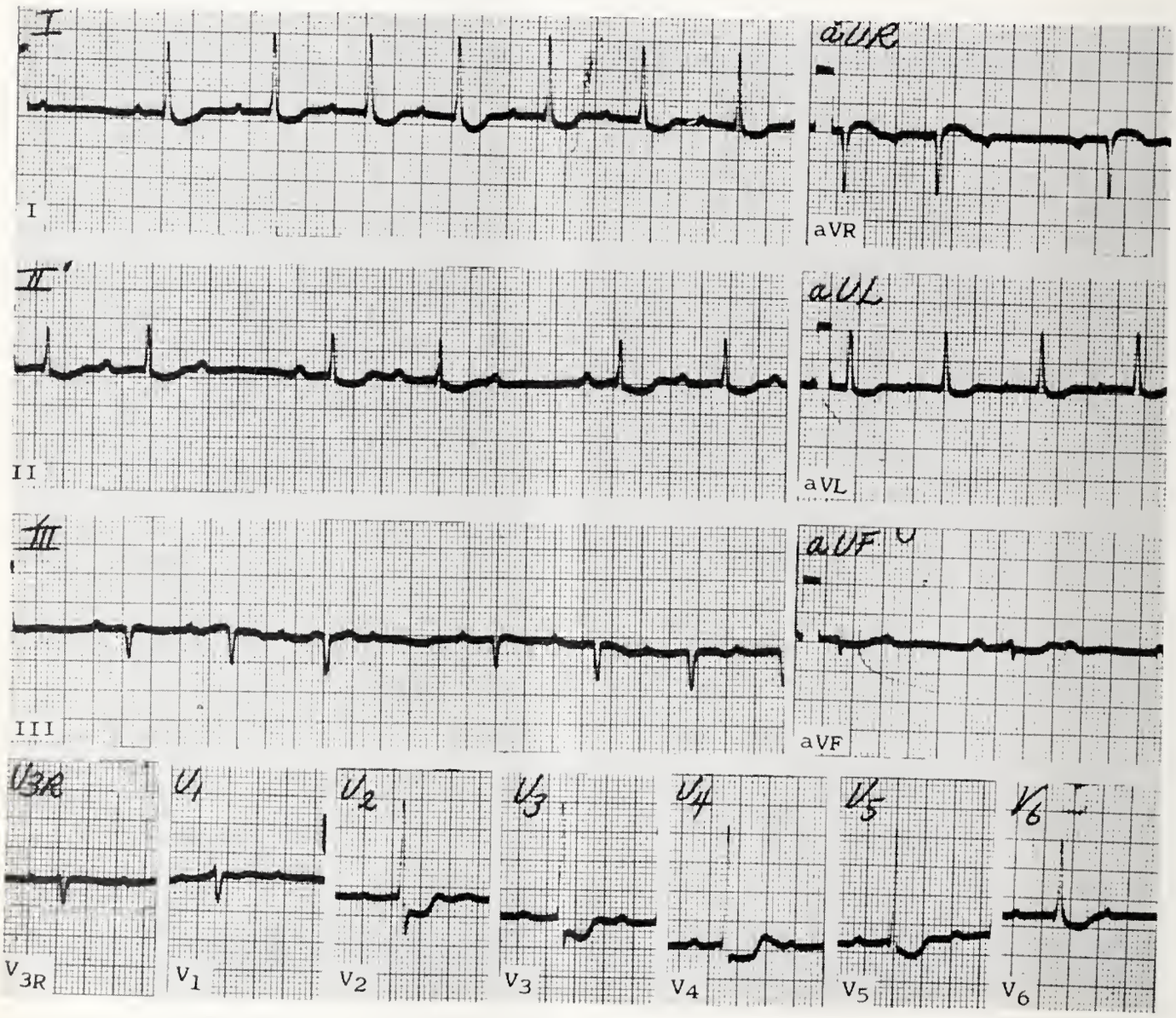
CARDIAC DIAGNOSIS: Arteriosclerotic Heart Disease?

OTHER DIAGNOSES: Rheumatoid Arthritis

MEDICATION: Digoxin, dosage not known.

HISTORY: Rheumatoid arthritis for years. Recent left pleuritic chest pain.

SEE ANSWER ON PAGE 127



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

Hospital Highlights in Arkansas

Public Law 725 of the 79th Congress entitled "The Hospital Survey and Construction Act" and better known as the "Hill-Burton" Act, was amended by Public Law 88-443 of the 88th Congress and was cited as the "Hospital and Medical Facilities Amendments of 1964". This new amendment extended the Hill-Burton Program through fiscal year 1969 and provided for, among other items, the allocation of funds to states for the purpose of modernizing or replacing substandard or obsolete facilities such as public or nonprofit community hospitals and other medical facilities. Under the modernization portion of the Act two hospital projects have received funds representing $466,768.00 and, in both cases, these were projects to replace substandard facilities. Federal funds allocated to the state under Public Law 88-443 continue to be percentage fund grants for the construction and equipping of nonprofit and publicly owned and operated institutions only. The current rates of federal participation in Arkansas for the various types of facilities or categories are shown below:

Hospitals and Public Health Centers	50%
Facilities for Long Term Care	60%
Diagnostic or Treatment Centers	50%
Rehabilitation Facilities	65%
Modernization	50%

It should be noted that the rate of federal participation in each of the above categories is subject to change for each fiscal year and because of the great backlog in requests for aid under the program and the relatively limited amount of federal funds available, the rates of federal participation next fiscal year will be as follows:

Hospitals and Public Health Centers	33⅓%
Facilities for Long Term Care	50%
Diagnostic or Treatment Centers	33⅓%
Rehabilitation Facilities	65%
Modernization	33⅓%

Another significant development is the almost total participation of Arkansas hospitals in the Health Insurance Program. Of the 112 general hospitals licensed by the Arkansas State Board of Health, 105 have been certified by the Social Security Administration for participation in the program. Hospitals eligible to participate in the program are certified in one of the following categories:

7a—In substantial compliance with the Conditions of Participation (With no significant deficiencies).

7b—In substantial compliance with the Conditions of Participation (With correctable deficiencies).

7c—Meeting the conditions for special certification (limited access).

There are 51 hospitals having a 7a certification, 28 hospitals having a 7b certification, and 26 hospitals having a 7c certification. It should be noted that a majority of the facilities having a 7c certification have such a certification due to a shortage of professional nursing personnel and professional consultants. In addition many of these facilities are located in primarily rural areas which are not conducive to the recruitment of professional personnel.

This year Arkansas hospitals will be provided with completely revised Standards for Hospital Licensure. Considerable effort has been expended in developing revised Standards that are consistent with current trends in the operation and function of today's modern hospital.

Nursing Home Highlights in Arkansas

All nursing homes prior to 1965 were licensed by the Arkansas State Board of Health if they met the minimum requirements for licensure as set forth in Act 414 of 1961 and the rules and regulations adopted by the State Board of Health for the licensure of nursing homes under this Act. However, many nursing homes were exceeding the minimum requirements and were providing quality nursing home care while other homes were only meeting the minimum standards for licensure. As a result of this situation it became apparent that a system should be built into the licensure program to establish levels of care and to provide for the licensure on a care level basis and to adopt rules and regulations for each care level. In order to provide for the licensure of nursing homes on the basis of care rendered and to permit the promulgation of applicable rules and regulations, Act 434 of 1965 was enacted by the 1965 Legislature which amended Section 19 and 23 of the aforementioned Act and provided for the licensure of nursing homes in the following categories: Minimum Nursing Home Care, which is the lowest level of care and the level of care that must be met in order for a nursing home to be licensed; Intermediate Nursing Home Care; and Skilled Nursing Home Care, which is the highest licensure classification. Act 434 of 1965 also permitted the adoption of applicable rules and regulations for each of the aforementioned levels of care.

The Arkansas State Board of Health's rules and regulations are the same for all nursing homes, except that those homes classified in the Intermediate Care and Skilled Care classifications must meet additional requirements based primarily on the quantity and quality of professional nursing personnel and quantity and type of equipment.

As of January 1, 1968 there were 188 licensed nursing homes in the State, representing 11,129 nursing home beds. Of these, 42 homes representing 1,598 beds were licensed as Minimum Care homes, 83 homes representing 4,936 nursing home beds were licensed as Intermediate Care homes, and 63 homes representing 4,595 beds were licensed as Skilled Care homes.

The licensure classification of nursing homes has significantly improved the quality of nursing home care in Arkansas.

Licensed nursing homes may also participate in the Health Insurance Program by meeting the Conditions of Participation set forth by the Social Security Administration for an Extended Care Facility. As of January 1, 1968 there were 38 nursing homes in Arkansas which have been certified by the Social Security Administration to participate in this program.

Another progressive step was the adoption of an amendment to the nursing home licensure rules and regulations by the Arkansas State Board of Health, which essentially required all licensed nursing homes constructed of combustible materials to be equipped with an approved automatic sprinkler system by January 1, 1968. As a result of this amendment, all licensed nursing homes in Arkansas will be either completely constructed of noncombustible materials, or will be protected by an approved automatic sprinkler system. The adoption and enforcement of this amendment has considerably reduced the hazards inherent in existing nursing homes of combustible type construction.

EDITORIAL

Interdisciplinary Training and Care of the Handicapped*

The need for more use of an interdisciplinary approach in the handling of patients seems to be in the best interest of both patients and physicians. This is especially true of patients with chronic conditions such as handicaps. The increasing body of knowledge in all fields and the professional manpower shortages make this more true as time goes on. Knowledge of what can be contributed by other disciplines should be a part of medical and allied types of training. When put into practice this knowledge should result in more efficient use of time and better service to patients. This is true even if the professional person is working alone or in an "unsophisticated" setting.

There has been some interest in and preliminary work done to get a "University Affiliated Training Center for Mental Retardation and Related Handicapping Conditions" at the University of Arkansas Medical Center. The nearest such center already approved and under construction is at the University of Tennessee Medical Units in Memphis. It is "phasing in" to a full program for interdisciplinary training in fifteen specialties. The main purpose of this Center is to provide training for persons preparing for professions serving children who are mentally retarded or who have other developmental or central neurological disorders. An equally important purpose, however, is demonstration to all of the students of the interdisciplinary approach to diagnoses and recommendations.

The target date for completion is September, 1969. Training will be offered to students in the following fifteen specialty areas:

Pediatrics
Pediatric-Neurology
Child Psychiatry
Social Work
Psychology
Speech Pathology and Audiology
Nursing
Dentistry
Special Education
Nutrition
Clinical Genetics
Ophthalmology
Otolaryngology
Occupational Therapy
Physical Therapy

Already represented on the staff are members of the first thirteen specialties listed and training is presently being offered to students of the first nine listed. Training is interdisciplinary, in that students of each discipline have exposure to the professional functions of all other disciplines. It is predominantly "clinical" in nature, in that it utilizes services to patients as the basis for learning.

Referrals for evaluation are accepted from physicians or recognized health or social agencies with admission for services generally limited to children eleven years of age or younger. There is no other limiting condition for initial referral nor is there any age limit placed on re-evaluation or follow-up services. Evaluation is comprehensive in that a wide variety of consultations or examinations necessary for thorough understanding of a child's problem are available. Many placement and follow-up services are also available. Treatment programs are limited, short-term, and demonstrational in nature. Every effort is made to send a comprehensive and useful report to the referrer and others who may be working with the handicapped patient. Follow-up is offered only in cooperation with the referrer. A large service program is being carried on. This will expand to some degree but will not be able to take care of all of the diagnostic service needs of the area, especially since training will be the main purpose of the Center.

*By Robert G. Jordan, M.D. Director, Child Development Center Memphis, Tennessee.

Para-Medical and Allied Health Training Through Vocational Education

Kathleen Partlow Peek

Advantages to the physician as well as to the medical institution can result from training programs in the para-medical and allied health fields in Arkansas. Physicians will be interested in existing and planned programs offered Arkansas by the State Department of Education's Vocational Division for Health Occupations Education. Vocational Education is interested in providing instruction in occupational areas that do not require a baccalaureate degree as a level of performance. These programs are on a post-secondary level for high school graduates or those achieving high school equivalency.

Existing Programs

In the past two years' time, new programs have been established through Vocational Education for health personnel in addition to the Practical Nurse Education program which has been operating since 1948 throughout the state. At the Little Rock Adult Vocational School, 14th and Scott Sts. Little Rock, classes leading toward certification for Medical Laboratory Assistant (Certified Laboratory Assistant) are being held. Also at this same school a course for Dental Assistant leading toward certification as Certified Dental Assistant has been started. In September, Instrumentation Technology, a two year program, will begin at Southwest Vocational Institute in Camden. A program for Dental Hygienist will be established at the University of Arkansas Medical Center effective July 1, 1968.

Vocational Education funds are provided to support Associate Degree programs for Registered Nurses in State supported institutions. The Vocational Education Division is working with hospitals and nursing homes by providing training for their supervisory personnel, for executive housekeepers and for nurse aide training.

Planned Programs

According to Mrs. Ursula Hazlewood, State Supervisor of Health Occupations Education, it is anticipated that many new areas of instruction will be initiated in the next two years which will help meet critical shortages of some professional and sub-professional personnel. These projected courses will provide training for the following:

Operating Room Technician
Medical Records Technician
Food Service Technician
Physical Therapy Assistant
Occupational Therapy Assistant
Medical Secretary
Inhalation Therapy Technician

Advantages to the Physician

The physician can profit in many ways from these programs. In addition to more trained personnel being made available, there are other advantages. Besides increasing efficiency in office, clinic, or hospital, more personal professional time can be given to the individual patient.

For example, examine the Certified Laboratory Assistant (Medical Laboratory Assistant). She or he can work under the direct supervision of a medical technologist, pathologist or other physician. Specific skills the graduate is trained to perform include collecting blood specimens, grouping and typing blood, preparing and staining slides for microorganisms, concentrating specimens for parasitologic study, analyzing

Little Rock Adult Vocational School, 14th & Scott Streets, Little Rock, Arkansas.

blood and body fluids for clinical components and microscopic examination of urine, blood and body fluids. Pay scales vary, but a 1967 estimate indicated that the CLA received $1,500 to $2,000 less than the median salary for Medical Technologist. This course takes only one year's training after high school graduation and consists of six months of classroom instruction in theory and laboratory techniques and six months in a cooperating clinical laboratory for clinical experience. Certification is obtained by taking the national certification examination given by the Board of Certified Laboratory Assistants of the American Society of Clinical Pathologists.

Doctors should endorse and encourage legislation that provides funds for Vocational Education. The State Department of Education is able to offer programs of this type through your support. Also physicians' support toward development of community junior colleges would further the progress of these training programs.

MEDICINE IN THE NEWS

LITTLE ROCK RESEARCH CLUB

The Little Rock Research Club was formally organized on January 20, 1968, a constitution was adopted and officers elected for the coming year. Officers for this year are:

James E. Doherty, M.D., President
Arthur Haut, M.D., Vice-President
Eugene J. Towbin, M.D., Sec.-Treasurer

Application was made for affiliation with the American Federation for Clinical Research as a local research club. The American Federation for Clinical Research approved the Little Rock Research Club for Membership.

Twenty-five meetings were held during the academic year in Room 5E19 at the University of Arkansas Medical Center at 10:00 on Saturday morning. Twenty-two of these were scientific presentations.

THE MONTH IN WASHINGTON

Washington, D. C.—The American College of Radiology, defending the current use of x-rays by physicians, critized published scare stories for causing unwarranted fears of x-ray examinations.

Dr. Richard H. Chamberlain, a spokesman for the college, said such articles as one in a recent issue of the Ladies Home Journal distorted the facts in such a manner that it added up to "one of the most tragic things in medicine" by scaring people as to the possible effects of being x-rayed. Dr. Chamberlain said usage of x-rays by physicians in this country is "remarkably good."

"The risks to patients in the performance for medical x-ray examinations are vanishingly small," he said. "Diagnostic x-ray examinations do not endanger the health of patients, despite a few shrill claims to the contrary. We could cite millions of instances where x-ray examinations provide life-saving information to patients."

The College supported in testimony before the Senate Commerce Committee a radiation standards bill, proposed after reports of radiation leaks from color television sets.

"The public has the right to expect protection against harmful amounts of inadvertent exposure to radiation from the operation of electronic devices," Dr. Chamberlain said.

He added that much more is known today about the effects of radiation than about many other environmental contaminants. Although more needs to be learned about the effects of low levels of radiation, he said, "we do know with assurance that their potential for harm is very small."

"The real tragedy occurs when even a single person may be misled by a distortion of radiation

hazards to refuse a needed diagnostic x-ray examination," he said.

* * * * * *

The Food and Drug Administration (FDA) has proposed new regulations for the classification of drugs found both safe and effective for their labeled uses in a survey of more than 3,600 prescription drugs.

The new procedures would open the way to increased competition within the drug industry by allowing firms to market drugs reclassified as "not new" or "no longer new" without submitting and awaiting approval of new drug applications (NDA) by the FDA.

A manufacturer that gets an NDA approval for a product has the right to market it exclusively. It is in effect an individual company license. Under the terms of the Food, Drug and Cosmetic Act, any medicine can remain in this "new drug" category regardless of how long it has been on the market.

The new proposal would set up a system for reclassifying the pre-1962 "new drugs" recognized as effective in the drug efficiency study being conducted for FDA by the National Academy of Sciences-National Research Council. The review, authorized by Congress in 1962, covers 3,690 drugs—every drug marketed in this country between 1938 and 1962. The drugs under review had been approved as "new drugs" solely on the basis of safety.

FDA announced that two drugs—metyrapone and metyrapone ditartrate—would be the first "new drugs" reclassified under the proposal. Both were found effective for their recommended uses of testing the functioning of the pituitary glands. They are manufactured by CIBA Pharmaceutical Co.

In its second report to carry out recommendations of the study of every drug manufactured in the United States between 1938 and 1962, the FDA notified the manufacturer of a drug used in the treatment of severely painful menstruation to provide evidence within 60 days that the product is effective for conditions listed in its labeling. The drug lutrexin, manufactured by Hynson, Westcott & Dunning, Inc., of Baltimore, is available on prescription only.

The FDA also has issued a new warning about dangers of the antibiotic drug chloramphenicol.

* * * * * *

Health, Education and Welfare Secretary Wilbur Cohen estimated that the medicaid program may cost the federal government between $2.5 and $3 billion in the fiscal year 1971.

The estimate for the next fiscal year (1968) is $2.1 billion. The originial estimate for the current year was $1.7 but that proved substantially low and the administration has asked for $500 million more.

Congress has put some restrictions on the medicaid program, effective this July 1, and they may result in holding down the 1971 costs below Cohen's estimate.

The Social Security Administration reported that the medicare Part B program, physicians' services, operated at a small deficit in fiscal 1967 which will be covered by the increases from $3 to $4 in monthly premiums.

The percentage of people 65 and over enrolled in the doctor bill insurance part of medicare went up from 92 to 95 percent during the 6-month open enrollment period that ended April 1. About 700,000 older people who had missed out on their first chance to enroll signed up between October 1, 1967, and April 1 of this year. Now, 18.6 million of the 19.6 million persons 65 and over in the nation are now enrolled for medicare voluntary medical insurance.

Social Security Commissioner Robert M. Ball said that the overall social security fund is in good fiscal condition. Medicare received $3.1 billion in fiscal 1967 and disbursed $2.6 billion, Ball said. He said estimates for the next 25 years showed that the program "has a favorable actuarial balance—namely, that total income over the 25 years ahead is expected to exceed total outgo."

Cohen told a House appropriations subcommittee that HEW was very much concerned and was making an intensive investigation of reported abuses by some physicians in federal medical programs.

He said a number of allegations had been made but that he would not want to make an overall statement until the investigation was completed.

"A typical kind of allegation concerns a doctor who goes into a nursing home—I will be just hypothetical about this—and he is there for an hour and then sends in a bill for an injection of something for every one of 50 people in the institution," Cohen said.

"Then we have had cases of bills being submitted in which the evidence suggests that the volume of services that he is requesting to be

paid for is beyond the ability of a particular person to handle. Well, he comes back to that allegation and says, 'I have a nurse and I have an assistant' and so on. So we have to look into each one of them on their merits. We are doing that now.

"The popular criticism usually has to do with the individual fee. I really don't think that is the major issue. The real issue is not so much the fee or the price per unit, but the number of units that the person is saying he delivered."

Cohen said he did not think such practices are widespread but that:

"We have enough to be very much concerned about it."

* * * * * *

A preliminary injunction was issued to halt the sale of a diathermy device distributed by the Diapulse Corporation of America.

The U. S. District Court for the Eastern District of New York, enjoined sales of the Diapulse device, advertised for treatment of 49 diseases and conditions, including tuberculosis, typhoid fever, staph infections, and gangrene.

The diapulse device was seized by FDA in 1965, and found to be misbranded on March 17, 1967, by a Federal court in Hartford, Conn., but the sale of the machine continued pending further appeals.

* * * * * *

A group of physicians specializing in child health has endorsed a bill to require special safety containers for drugs, soaps and other household products involved in the poisoning of 500,000 children each year.

The Accidental Poisoning Committee of the American Academy of Pediatrics endorsed the measure sponsored by Chairman Warren G. Magnuson, D-Wash., of the Senate Commerce Committee. The Academy, in a letter to Magnuson, said the bill was the only "practical way to eliminate hazards from drugs and household products."

The government announced a ban on interstate shipment of household products containing carbon tetrachloride—a substance used in some cleaning fluids.

The Food and Drug Administration (FDA) said use of the chemical in a home constitutes a hazard to public health and added there are many safer substitutes available. According to the FDA, carbon tetrachloride can be fatal if the fumes are inhaled. The chemical can also cause damage to the liver, kidneys, brain and nervous system, the agency said.

NATIONAL INTERN AND RESIDENT MATCHING PROGRAM* 1958-1968

Since its inception in 1951, 120,000 U. S. medical school graduates have taken advantage of the National Intern and Resident Matching Program. Table 1 summarizes the number of participating graduates, the number of positions offered and filled during the years 1958-1968. Except for the continued increases in the number of intern positions offered and students participating, there have been no significant changes over the years. The percentage of graduates participating in the program has remained consistently at 96 per cent. The rate of increase of the number of internships offered has kept pace with the number of participants so that the percentage of internships filled has remained essentially constant.

Of significance, however, are the changes in the proportion of interns matched to major teaching hospitals with medical school affiliations and of nonaffiliated hospitals. A direct comparison of the 1968 NIRMP program with that of 1958 as presented in Table 2 shows that in 1968 the number of interns matched to major teaching hospitals was 11.2 per cent higher than in 1958. Nonaffiliated hospitals showed an 8.6 per cent decline in the number of interns matched in 1968 as compared with the 1958 level. The number matched to minor teaching and federal service hospitals have remained relatively constant.

Table 3 compares the success of hospitals which have a major medical school affiliation in obtaining interns through the NIRMP with those having no medical school affiliation. In 1958, 81 per cent of hospitals with a major affiliation received one-half of their desired total intern quota through NIRMP as compared with 76 per cent in 1968. The percentage of interns matched remained the same (85 per cent) in both years. The proportion of nonaffiliated hospitals receiving more than one-half of the interns sought through the NIRMP program

TABLE 1

Summary of the Number of Participating Medical Graduates and the Number of Internships Offered and Filled 1958-1968

Year	Total Participants	Total Matched	% Matched	Total Internships Offered	% Internships Filled
1958	7,131	6,734	94.4	11,958	56.3
1959	6,729	6,478	96.3	12,250	52.9
1960	6,911	6,673	96.6	12,390	53.9
1961	6,856	6,637	96.8	12,686	52.3
1962	6,962	6,748	96.9	12,705	53.1
1963	7,180	6,954	96.9	12,456	55.8
1964	7,351	7,130	97.0	12,601	56.6
1965	7,598	7,342	96.6	13,038	56.3
1966	7,836	7,588	96.8	13,463	56.4
1967	8,000	7,753	96.9	14,178	54.7
1968	8,306	8,007	96.4	14,566	55.0

TABLE 2

Experience of NIRMP Participants According to Matching Results

NIRMP Participants Matched to:	1958		1968	
	Number Matched	% of Total	Number Matched	% of Total
Major Teaching Hospital	3,385	47.5	4,873	58.7
Nonaffiliated Hospital	2,356	33.0	2,030	24.4
Minor Teaching Hospital	467	6.5	582	7.0
Federal Service	526	7.4	522	6.3
Total Matched	6,734	94.4	8,007	96.4
Unmatched	397	5.6	299	3.6
Total Participants	7,131	100.0	8,306	100.0

decreased from 31 per cent in 1958 to 23 per cent in 1968; the percentage of interns matched increased by nearly 2 per cent.

*In 1968, the National Intern Matching Program (NIMP) was reincorporated as the National Intern and Resident Matching Program (NIRMP).

TABLE 3

Matching Experience of Hospitals With and Without Major Medical School Affiliations

Per cent of Interns Obtained Through NIRMP	1958 Major Medical School Affiliations					1968 Major Medical School Afilliations				
	Hospitals		Interns			Hospitals		Interns		
	Number	%	Number Sought	Number Matched	% Matched	Number	%	Number Sought	Number Matched	% Matched
50-100	124	81.0	3,756	3,203	85.3	145	75.9	5,416	4,632	85.5
0- 49	29	19.0	574	182	31.7	46	24.1	946	241	25.5
Total	153	100.0	4,330	3,385	78.2	191	100.0	6,362	4,873	76.6
	No Medical School Affiliations					No Medical School Affiliations				
50-100	188	31.4	2,426	1,931	80.0	103	22.5	1,828	1,496	81.8
0- 49	411	68.6	3,890	425	10.9	355	77.5	4,607	534	11.6
Total	599	100.0	6,316	2,356	37.3	458	100.0	6,435	2,030	31.5

AMERICAN COLLEGE OF CHEST PHYSICIANS FORMS OZARK CHAPTER

At the annual meeting of the American College of Chest Physicians in San Francisco, June 13-18, 1968, the Board of Regents approved the formation of a new chapter of the College. The new chapter has been named the Ozark Chapter of the American College of Chest Physicians. The membership of this new chapter is composed of the College membership of the four states geographically located in the Ozarks. These are Arkansas, Missouri, Kansas and Oklahoma. A prime aim of the Ozark Chapter is to sponsor an annual scientific session each Fall in the Ozarks. Each year certain important aspects of cardiopulmonary diseases will be reviewed and new developments and their application will be presented. It is also hoped that original research of general interest from the various medical centers in the Ozark's region will be presented. Information concerning the Ozark Chapter or other activities of the American College of Chest Physicians may be obtained by writing the College office, 112 East Chestnut Street, Chicago, Illinois, 60611, or James R. Rasch, M.D., ACCP Governor for Arkansas, 900 North University Avenue, Little Rock, Arkansas, 72207.

THINGS TO COME

TENNESSEE VALLEY MEDICAL ASSEMBLY

"TENNESSEE VALLEY MEDICAL ASSEMBLY, Memorial Auditorium, Chattanooga, Tennessee, September 13-14, 1968. E. Wayne Gilley, M.D., Chairman, 107 Interstate Building, Chattanooga, Tennessee 37402."

FIRST ANNUAL MEETING OF THE OZARK'S CHAPTER AMERICAN COLLEGE OF CHEST PHYSICIANS

To Be Held October 25-27, 1968

The first annual meeting of the Ozark's Chapter of the American College of Chest Physicians will be held October 25-27, 1968, at the Lodge of the Four Seasons, Lake Ozark, Missouri, and is entitled, CLINICAL MANAGEMENT OF CARDIOPULMONARY INFECTIONS. The scientific sessions are open to both members and non-members of the American College of Chest Physicians and there will be no registration fee. A complete program and attendant information will be mailed to all physicians in Arkansas in the near future.

OBITUARY

Dr. S. A. Drennen

Dr. S. A. Drennen of Stuttgart died in June at the age of 78. Dr. Drennen was a native of Newark. He was graduated from the University of Arkansas School of Medicine at the age of 23. He then moved to Newark with his first wife where he opened his first office in 1913. He then opened a six-bed emergency hospital in the rugged mining territory at Rush on the Buffalo River. His first wife died two weeks after giving birth to his eldest daughter. Before entering the service in World War I, he married Marguerite Owen. He entered service as a lieutenant in the Medical Corps and rose rapidly to the rank of major and the head of the staff of a medical train which handled 23,601 casualties in 47,000 miles of travel on the battlefronts. After the war he set up practice in Stuttgart. Dr. Drennen was well known as a sportsman and became the founder of gar fishing as a major angling sport in Arkansas. He and his wife's father, Grover T. Owen, pioneered the organization of Ducks Unlimited in Arkansas and later established the Arkansas Game and Fish Commission as an independent agency of the state government. He served as president of the Arkansas Medical Society from 1952-1953. He became a life member of the Society in 1963. During his career he also served as mayor of Stuttgart, was a member of the First Christian Church, was a member of the AMA, was a member of the American Legion, and served as chief of staff of Stuttgart Memorial Hospital. His wife died in April of this year. He is survived by two daughters, Miss Helen Blanche Drennen

of Stuttgart and Mrs. Tommie Bouchard of Longview, Texas; and four sisters, Mrs. H. Y. Roberts, Miss Ruby Drennen, Mrs. Van Wilson, and Mrs. Joe Wretstrom, all of Little Rock.

PERSONAL AND NEWS ITEMS

Arkansans Attend AMA Meeting

Among those attending the annual convention of the American Medical Association at San Francisco in June were the following from Arkansas: Dr. and Mrs. H. W. Thomas, Dermott; Dr. and Mrs. Ross Fowler, Harrison; Dr. and Mrs. Charles F. Wilkins, Russellville; Dr. and Mrs. Ben N. Saltzman, Mountain Home; Dr. and Mrs. James M. Kolb, Sr., Clarksville; Dr. and Mrs. J. W. Kennedy, Arkadelphia; Dr. and Mrs. C. C. Long, Ozark; Dr. and Mrs. Purcell Smith, Little Rock; Dr. D. W. Goldstein, Fort Smith; Dr. and Mrs. W. L. Shippey, Fort Smith; Dr. and Mrs. D. B. Stough, III, Hot Springs; Dr. and Mrs. Art B. Martin, Fort Smith; Mrs. C. D. Burroughs, Pine Bluff; Mrs. Mason Lawson, Little Rock.

Dr. Thomas Honored

Dr. H. W. Thomas of Dermott was the honored guest on June 24 at a dinner meeting of the Dermott Chamber of Commerce. State Senator John F. Gibson paid tribute to Dr. Thomas for his "energy and tenacity" and service to fellow man above the call of his profession. Dr. Thomas was commended for his long years of service, for his professional accomplishments, and for his numerous community and church activities. The Chamber of Commerce presented Dr. Thomas with a gift, a "Billroth tumor forcep". Dr. John T. Herron of Little Rock was the guest speaker at the meeting. The subject of his talk was the Hill-Burton program.

Dr. Fulton Attends Hypnosis Seminar

Dr. William L. Fulton of Little Rock attended a Seminar on Hypnosis in Little Rock in May.

Dr. Grimes Speaks at Meeting

Dr. H. Austin Grimes of Little Rock discussed "Hobbies and Health" at a meeting of a Little Rock chapter of the American Business Women's Association in June.

Dr. James W. Headstream Speaker

Dr. James W. Headstream was a recent speaker as a member of the panel on Obstructive Uropathy in Children at the recent meeting of the American Urological Association in Miami."

Dr. Dillaha Elected

Dr. Calvin J. Dillaha of Little Rock was elected to the Board of Directors of the Society for Investigative Dermatology at the annual meeting of the Society in San Francisco in June.

Dr. Ross Receives Award

Dr. S. William Ross of Little Rock received a distinguished service award from the Arthritis Foundation at its recent meeting in New York. The award was for his outstanding service to the Arkansas Chapter of the Foundation and for his other accomplishments in the field of arthritis.

Dr. Schirmer Joins American College of Allergy

Dr. Roy E. Schirmer of Fort Smith was made Fellow of the American College of Allergy at the recent meeting in Denver, Colorado.

Dr. McConnell Has Eye Surgery

Dr. S. P. McConnell of Booneville had eye surgery in Fort Smith in June. His son, General John Paul McConnell, Air Force Chief of Staff, came in from Washington to be with him for the surgery.

Dr. McCollum Volunteers for Expedition

Dr. E. N. McCollum of Decatur accompanied a medical team on an expedition through virtually unexplored regions of Guatemala. The team is co-sponsored by Duke University and the Government of Guatemala. The purpose of the expedition is to study the health conditions and needs of the natives. Dr. John L. Garrett and Dr. Billy V. Hall, both of Gravette, cared for his patients during his absence. He was due to return on August first.

Dr. Henry Studies in Europe

Dr. Morriss Henry of Fayetteville recently did post graduate study in retinal detachment surgery in Essen, Germany, and London, England. He also attended the Congress of the European Society of Ophthalmology in Amsterdam, Holland, June 6th to June 27th.

Dr. Robins Appointed

Dr. R. B. Robins of Chicago, formerly of Camden, was appointed as an examiner of candidates for fellowship in the International College of Surgeons. He is a lifetime Fellow of the American College of Surgeons.

Dr. Dodd Wins First Place

Dr. Doyne Dodd of Fort Smith was awarded first place honors at the Fort Smith Camera Club's contest in June. His winning entry was a close-up shot of a katydid which showed the delicate detail of the insect's wings, feelers, and legs.

Dr. Bryant Attended Convention

Dr R. F. Bryant of Pine Bluff, president of the Arkansas Medical, Dental, and Pharmaceutical Association, presided over the 75th annual convention of that society in June in Hot Springs.

Dr. Townsend Speaks at Conference

Dr. T. E. Townsend of Pine Bluff spoke at the Arkansas Chapter Conference of the National Rehabilitation Association in June. The subject of his talk was the doctor's role in patient rehabilitation.

DR. AND MRS. C. C. LONG AND FAMILY

This family photo was taken during the reception on June 19th honoring Esther Long, president of the Woman's Auxiliary to the American Medical Association. From left to right: Joan Long, June Long, C. C. Long, III, Mrs. C. C. Long, Dr. C. C. Long, James Gardner, Mrs. C. C. Long, III (Linda), and Mary Long Gardner.

RECEPTION HONORS MRS. LONG

During the American Medical Association convention in San Francisco in June, the Arkansas Medical Society hosted a reception honoring Mrs C. C. Long of Ozark, newly installed president of the Woman's Auxiliary to the AMA. Pictured above is a portion of the receiving line at the reception—Dr. and Mrs. Long, Mrs. Mason Lawson, a past president of the AMA Auxiliary (right) and Mrs. H. W. Thomas, wife of the president of the Arkansas Medical Society. Others included in the receiving line but not shown were Dr. Thomas, Mr. Paul C. Schaefer, Executive Vice President of the Society, Mrs. Schaefer, Mrs. C. D. Burroughs, president of the Woman's Auxiliary to the Arkansas Medical Society, and members of the Long family.

Dr. Smith Elected President

Dr. T. J. Smith of Little Rock was elected president of the Arkansas Society of Internal Medicine at their annual convention in Hot Springs in June. Dr. George W. Allen of Fort Smith was named president-elect and Dr. Eldon J. Pence, Jr., also of Fort Smith, was elected secretary-treasurer.

Speakers Bureau Participant

Dr. L. A. Whittaker of Fort Smith represented the Speakers Bureau of the Arkansas Medical Society in June. He spoke on "City Health Department" at a meeting of the Fort Smith Optimist club.

MRS. LONG INSTALLED AS AMA AUXILIARY PRESIDENT

Mrs. C. C. (Esther) Long of Ozark, Arkansas, was installed as president of the Woman's Auxiliary to the American Medical Association during the annual meeting in San Francisco in June.

During the past year, Mrs. Long has served in the capacity of president-elect and has traveled widely as a representative of the AMA Auxiliary. Prior to her election to the position of president-elect, she served the Auxiliary as First Vice President. Mrs. Long also served as chairman of the Rural Health Committee of the National Auxiliary for three years.

Mrs. Long has been most active in the Ar-

kansas Auxiliary and is a past president of the state group. In addition to other Auxiliary work, she is involved in many projects on both the local and state level. She has served for seven years as a member of the Board of the Girls Training School and is now chairman of that Board. Earlier this year, Governor Rockefeller appointed her to the Advisory Committee on the Status of Women. In Ozark, Mrs. Long was named Citizen of the Year in 1956. She organized the Brownies, Girl Scouts, and Cub Scouts in her home town. She is an active member of the Methodist Church and was recently voted a life membership in the Women's Society of Christian Service. Mrs. Long has been chairman of the Community Improvement Committee and president of the Parent-Teachers Association.

Dr. and Mrs. Long have three daughters and one son.

KNOW YOUR NEW OFFICERS

George F. Wynne, M.D.

Harry Hayes, Jr., M.D.

George F. Wynne was elected to a two-year term as councilor during the 1968 convention of the Arkansas Medical Society. He represents the Fifth Councilor District which includes Bradley, Calhoun, Cleveland, Columbia, Dallas, Ouachita, and Union Counties. Dr. Kenneth R. Duzan of El Dorado is the other councilor for the district.

Dr. Wynne was born in Fordyce, Arkansas, on June 14, 1924, and was educated in Arkansas. He received a B.S. degree from the University of Arkansas in 1949 and an M.D. degree from the University of Arkansas School of Medicine in 1951. Dr. Wynne interned at Arkansas Baptist

At the 1968 meeting of the Arkansas Medical Society, Harry Hayes, Jr., of Little Rock was elected to the position of First Vice President. Dr. Hayes served as chairman of the convention committee for the 1968 meeting and has served for several years as chairman of the scientific exhibits committee.

Dr. Hayes was graduated from the University of Arkansas School of Medicine in 1955. Following internship at the University Hospital, he served two years as assistant chief of general surgery at the United States Army Hospital, Fort Chaffee, Arkansas, with the rank of Captain. Upon his discharge from the service, he spent

George F. Wynne, M.D.

Hospital in Little Rock.

After completing his internship, Dr. Wynne located in Warren for the general practice of medicine and has continued to practice there.

During World War II, Dr. Wynne served as an officer in the United States Navy for four years.

Dr. Wynne is currently president of the Bradley County Medical Society. He has served many times as the delegate from his county society to the House of Delegates of the Arkansas Medical Society. Dr. Wynne is a long-time member of the Arkansas Academy of General Practice, a member of the Arkansas State Medical Board, a Councilor of the Southern Medical Association, and has served on the ARKPAC Board.

Dr. Wynne is married to the former Matilda McFaddin and he is the father of four children: Matilda, 18; French, 16; Marianne, 14; and McFaddin, 12.

He is a Methodist and has served as chairman of the official board of the First Methodist Church and as lay delegate to the annual conference.

Dr. Wynne is a Rotarian and was president of the Warren Rotary Club in 1961-62.

DR. JAMES R. KNAPP is a new member of the Benton County Medical Society. He was born in Modesto, California in 1929. He attended Baylor University where he received a B.S. degree in 1951. He was graduated from the Baylor University College of Medicine in 1957 with a degree in medicine. He interned at the United States Public Health Service Hospital in New Orleans, Louisiana. Dr. Knapp held a Baylor affiliated residency in Houston, Texas. From 1957 until 1961, Dr. Knapp served in the division of Radiological Health at the United States Public Health Service Hospital. He then practiced for three years in Phoenix, Arizona. He has held a teaching position in the Department of Radiology at the Baylor College of Medicine. He is currently specializing in Radiology at the Washington General Hospital in Fayetteville.

Harry Hayes, Jr., M.D.

two years at the New York Hospital, Cornell Medical Center, New York City, as assistant resident and chief resident in plastic surgery.

In July 1961, Dr. Hayes went to London, England, where he filled the post of Surgery Registrar in Plastic and Reconstructive Surgery at The Queen Victoria Hospital in East Grinstead, Sussex, England. Part of the time he spent at St. Bartholomew's Hospital in London.

Dr. Hayes returned from England in 1962 and began private practice in plastic surgery at Little Rock. In 1964, Dr. Hayes became a diplomate of the American Board of Plastic Surgery. He was senior consultant in Plastic Surgery for the Crippled Children's Division of the Arkansas Department of Welfare in 1964 and was director of the Arkansas Children's Hospital Cleft Palate Clinic from 1964 to 1968. He is currently Vice Chief of Surgery at the Arkansas Baptist Medical Center and is on the active staff of St. Vincent Infirmary, both of Little Rock, and the Memorial Hospital of North Little Rock. He is an assistant professor of surgery at the University of Arkansas School of Medicine. Dr. Hayes is the author of 10 publications in the field of plastic surgery. In addition to local, state, and AMA membership, he has membership in the Little Rock Academy of Surgery, Southwestern Surgical Congress, Southern Medical Association, American College of Surgeons, American Cleft Palate Association, British Association of Plastic Surgeons, the Southeastern Society of Plastic and Reconstructive Surgeons and the American Society of Plastic and Reconstructive Surgery.

DR. GEORGE A. McCRARY has become a member of the Pulaski County Medical Society. He was born in Nashville, Arkansas, in 1939. He attended the University of Arkansas for his pre-medical education. He attended the University of Arkansas School of Medicine and was graduated in 1964 with a degree in medicine.

He interned at the Arkansas Baptist Medical Center in Little Rock. He served as a Lieutenant in the U. S. Navy from 1965 to 1967. In 1967, he started practice at the Johnson-Durham Clinic in Jacksonville, Arkansas. He is currently in general practice there.

DR. WILLIAM H. SIDDON was announced by the Conway County Medical Society as a new member. He is a native of Sweatman, Mississippi, where he was born in 1917. He attended the Millsaps College in Jackson, Mississippi, for his pre-medical education. He received his degree in medicine in 1941 from the University of Tennessee College of Medicine. He interned at the St. Joseph's Hospital in Memphis, Tennessee, and spent his residency at the University of Arkansas Medical Center in Little Rock. He served in the United States Army from 1942 until 1946. He first practiced in Orange, Texas, until 1964 then he practiced in Chester, North Carolina, until 1966. He then moved to Nashville, Tennessee, where he practiced until moving to Morrilton this year to practice Internal Medicine at 601 South Moose Street.

ANSWER—Electrocardiogram of the Month

RATE: 80 RHYTHM: Sinus with variable incomplete A-V block with dropped beats.

P-R: Variable QRS: .07 sec. Q-T: 0.28 sec.

SIGNIFICANT ABNORMALITIES: Variable prolongation of P-R interval at times increasing with dropped beats. Sagging ST depression with low T waves. Q-T interval short.

INTERPRETATION: Abnormal.
The A-V block of this type (Wenckebach) with ST-T changes strongly suggests digitalis toxicity.

BOOK REVIEWS

NUTRITION AND INFECTION, Various Authors, Edited by G. E. W. Wolstenholme and Maeve O'Connor, illustrated, pp. 151, published by Little, Brown, and Company, Boston, 1967.

INTERFERON, Various Authors, Edited by G. E. W. Wolstenholme and Maeve O'Connor, illustrated, pp. 284, published by Little, Brown, and Company, Boston, 1967.

DECISION MAKING IN NATIONAL SCIENCE POLICY, Various Authors, Edited by Anthony De Reuck, Maurice Goldsmith, and Julie Knight, illustrated, pp. 324, published by Little, Brown, and Company, Boston, 1968.

Hereditary Tendinous and Tuberous Xanthomatosis Without Hyperlipidemia

W. R. Harlan, Jr. and W. J. S. Still (Medical College of Virginia, Richmond)
New Eng J Med 278:416-421 (Feb 22) 1968

Multiple tendinous and tuberous xanthomas were found in two siblings with plasma lipids that were quantitatively and qualitatively normal. The predominant lipid in the xanthomatous lesions was esterified cholesterol. The lipid composition, phosphatide distribution, and ester fatty acids of xanthoma were similar to those of hyperlipidemic xanthomas. Cholesterol synthesis in these normolipidemic xanthomas was similar to that in hyperlysidenic xanthomas and less than that in skin. Electron microscocopic observations and the slow rate of cholesterol synthesis suggested that plasma lipids despite normal levels, were the source of the xanthomatous material, although the precise mechanism of lipid accumulation could not be elaborated. Diffuse pulmonary infiltration and impaired gaseous exchange were found in the propositus, suggesting xanthomatous involvement of the lungs similar to that often present in eosinophilic granuloma. This disorder, however, had none of the other characteristics of eosinophilic granuloma. Normolipidemic tendinous and tuberous xanthomatosis is a distinct disease with recessive inheritance and can be classified as reticuloendotheliosis.

OPPORTUNITIES TO PRACTICE MEDICINE IN ARKANSAS

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2. Opening for association with general surgeon—GP, internist, or pediatrician.

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ASHDOWN. Population 4,000, very large trade area. Opportunity for association with clinic. 3 physicians now on staff, only physicians in immediate trade area. Salary or percentage offered. No financial outlay. 45-bed hospital. SOUTHWEST ARKANSAS.

NASHVILLE. Population 4,500. General Practitioner seeking associate or would welcome another physician for solo practice in town. 4 physicians in town. SOUTHWEST ARKANSAS.

STAMPS. Population 2,600, large trade area with only three physicians. Modern clinic available. SOUTHWEST ARKANSAS.

DERMOTT. Population 3,665. GP and surgeon would like to have 2 physicians who do surgery as well as general practice take over his practice. 35-bed hospital in town. 2 other GP's in town. SOUTHEAST ARKANSAS.

McGEHEE. Population 5,000, very large trade area with only two physicians. 26-bed hospital county owned, 89-bed skilled nursing home. SOUTHEAST ARKANSAS.

MONTICELLO. Population 5,500. Urgent need for additional physicians. Opportunity for association with two physicians (separate practices) or physicians would help in establishing solo practice. 53-bed hospital.

RISON. Population 1,400. Large trade area. 32-bed county hospital, 36-bed nursing home. New clinic available. One physician in practice in town.

For further information, contact:

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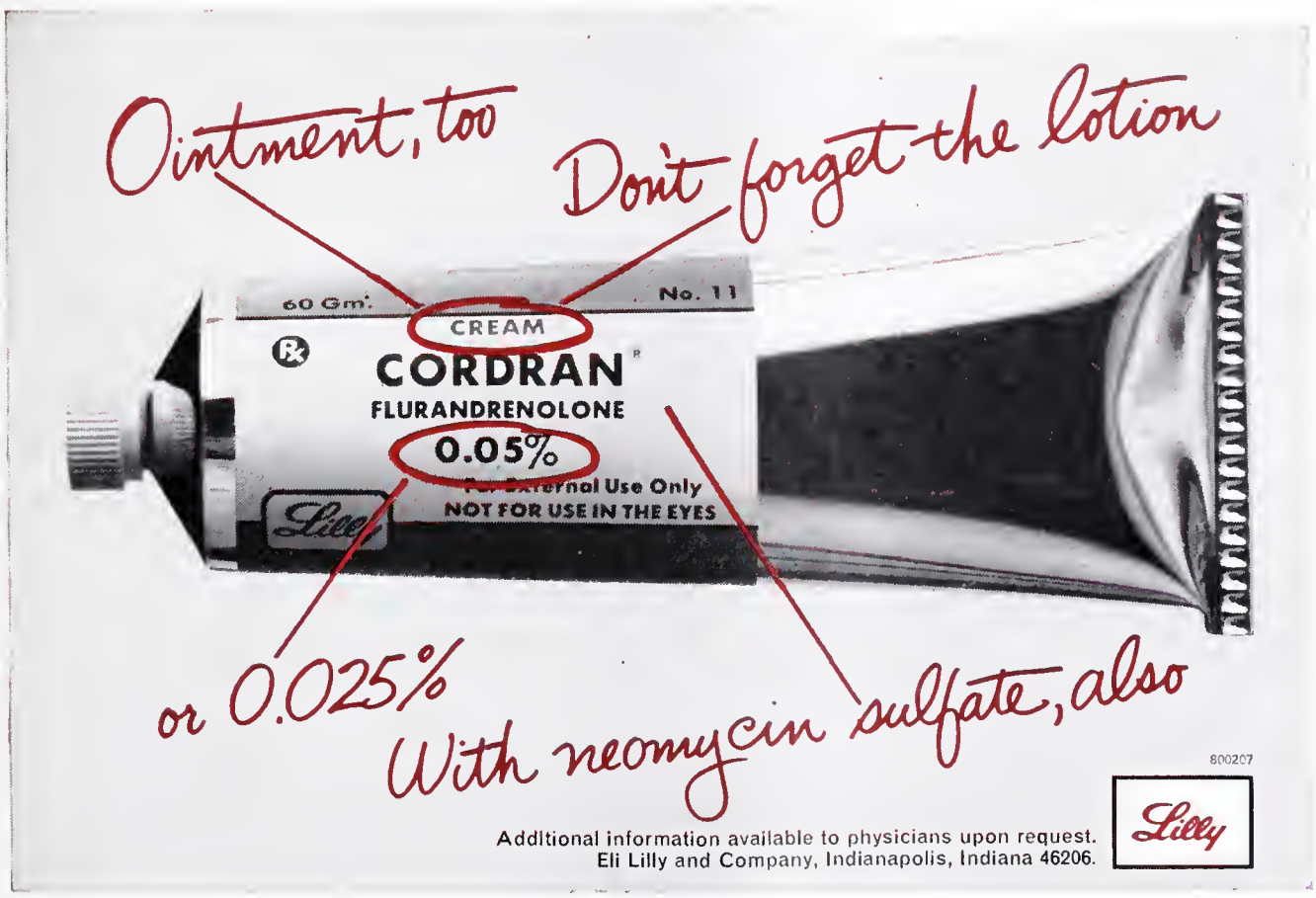

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Interferon as a Viral Inhibitor

Virginia L. McMillan

During the past two decades an abundance of information concerning individual viruses and the process of viral replication has accumulated. From this information has come at least a partial understanding of how viruses are able to take over certain processes of a susceptible cellular population, an attribute which contributes greatly to the ability of a virus to produce disease. Such fundamental studies have raised the question of what type of defense mechanism, if any, the host cell, be it from man or lower animal, has to combat such intracellular parasites. With such information concerning cellular mechanisms has come newer approaches to the control of viral infections. One such approach has considered the importance of chemotherapeutic agents in affecting viral proliferation, and a second has considered the role of antibody synthesis in cellular immunity.

The notable successes achieved in antibacterial therapy since the beginning of World War II have stimulated an intensive search for chemical substances of equal value for preventing or treating viral diseases. These attempts have proven fruitless for the most part because many of the drugs which have been used successfully in cell cultures against some of the viruses are too toxic for the same cells in the mammalian host. This lack of preferential action on virus-controlled synthesis in the intact host is due to the intimate interrelation of host cell and viral synthetic activities. The virus depends on host cells for most if not all of the small-molecular precursors used in viral synthesis, and the host supplies the energy required. The virus also uses cellular enzymes which function in protein biosynthesis as well as several other components associated with the synthesis of viral nucleic acids. Inhibition of any of these cellular functions would result in interference with viral multiplication, but at the same time the host cell would be adversely affected.

For many years it was assumed that the ability of a host to produce antibodies in response to a viral stimulus was his primary and perhaps his only defense against viral infections. Now it is quite clear that the presence of antibodies alone does not suffice to explain man's recovery from all viral diseases. This is demonstrated by the normal recovery from these infections of individuals who are hypogammaglobulinaemic (1). Further evidence comes from the studies by Friedman *et al.* (2) who demonstrated that rabbits infected intradermally with vaccina virus recovered normally even when normal humoral immune functions were inhibited by treatment with methotrexate and X-irradiation.

Perhaps the most notable observation of a possible explanation for cellular immunity came over thirty years ago when the ability of one virus to interfere with the multiplication of another was recognized. First recognition of interference between animal viruses was made in 1935 by Hoskins (3). Findlay and MacCallum (4) proved this viral interference phenomenon to be a nonimmunological mechanism when they demonstrated that interference occurred between antigenically related as well as antigenically unrelated viruses. Although it has been demonstrated in the laboratory that the inoculation of one virus may protect the host from infection with a second unrelated virus, no therapeutic or prophylatic application of the concept of viral interference has been made in man. Moreover, this phenomenon was poorly understood until Isaacs and Lindenmann (5) discovered that interfering virus stimulated cells to produce a soluble antiviral substance which mediated certain types of this interfering phenomenon. The term "interferon" was coined for this antiviral substance. In the original work of Isaacs and Linden-

*Department of Microbiology, University of Arkansas School of Medicine, Little Rock

mann (5), fragments of chorioallantoic membrane from chick embryos were exposed to heat-inactivated influenza virus. A soluble material produced in and released from the stimulated cells of the chorioallantoic membrane was subsequently found to block infection of normal cells by active influenza virus. To detect interferon, cells and materials being tested for the presence of interferon are incubated together for several hours. Following this incubation period, the test materials are removed and a known virulent virus is added. Early tests for interferon activity, such as the protection of whole animals, embryonated check eggs, or tissue cultures from the destructive effects of viral replication, have now been largely replaced by the more quantitative method of plaque reduction; a susceptible culture of cells is pretreated with the diluted interferon and subsequently challenged with a known number of plaque forming units of the test virus.

Interferons are produced in response to viral infection in the cells of many species of animals, including man and other mammals, birds, at least one poikilothermic reptile (6) and fish (7). It has been found, both in tissue culture cells and in the intact animal, that interferons exhibit species or cellular specificity. This is the best evidence for the existence of more than one type of interferon. Species specificity was first noted by Tyrrell (8), who found that interferons derived from cells of calves and chickens were much more active when tested in cells of the homologous than in the heterologous animal species. This species barrier against heterologous activity has not always been reported to be absolute. Rhesus monkey interferon has some activity on human cells (9). This seems to indicate that the closer the phylogenetic relationship, the greater the chance for the interferon produced in the cells of one species being effective on the cells in another. Whereas species specificity is evident, viral specificity has not been noted since the cells of one animal species apparently produce the same interferons in response to infection with different viruses (10).

The factors that control interferon formation will be discussed subsequently in greater detail. Evidence now seems conclusive that the synthesis of interferons is a cellular function shared in all probability, by all vetebrate cells. The amounts of interferon produced by cells may vary considerably, depending on the nature of the infecting virus, the cell type and environmental conditions, such as temperature, pH and oxygen tension. Active metabolism on the part of the infected cells is also a necessary requirement (11).

Initially it was believed that only viruses or viral components were capable of inducing interferon production in cells. These included both active ribonucleic acid (RNA) and active deoxyribonucleic acid (DNA) viruses. Likewise, inactivated RNA and DNA viruses were effective interferon inducers. More recently a number of agents other than viruses have been shown to stimulate its formation under experimental conditions. These include bacteria (12), rickettsiae (13), trachoma-inclusion conjunctivitis agents (14), bacterial endotoxins (15), statolon (16) and cycloheximide (17). The largest known agent to induce interferon formation is the intracellular protozoan, *Toxoplasma gondii* (18). The interferons produced by stimulation from these non-viral inducers have similar antiviral activity but differ somewhat in molecular characteristics.

It appeared at first that viruses induced the formation of interferons of small molecular weights ranging between 25,000 to 30,000. Non-viral inducers, such as endotoxin, appeared to stimulate the production of interferons of much higher molecular weight. Recent studies now indicate that interferons produced in cell cultures have molecular weights ranging from 20,000 to 34,000. Those produced in the intact animal appear to be of three molecular weight classes depending on the nature of the inducer, the animal studied, the site examined and the time after induction (19, 20). Whether the interferons of different molecular weights may be related to each other remains to be determined. Whether these different molecular weight inhibitors should all retain the name "interferon" is not yet clear. Possibly the name should be applied to all, only if they can ultimately be shown to inhibit viral growth by the same mechanism.

Until very recently, the major stumbling block for accurate characterization of the nature and action of interferons has been the unavailability of purified preparations. Using the more reliable purification procedures now available, it has been shown that interferons prepared from different animal species show some minor biological and chemical differences. In general interferons

are characterized as follows: (1) nondialyzable basic proteins with isoelectric points at approximately pH 8.0; (2) nonsedimentable at 100,000 g for several hours; (3) relatively heat stable; (4) stable between pH 2 and 10; and (5) inactivated by proteolytic enzymes, such as trypsin, chemotrypsin, pepsin and papain.

Immunologically, interferons are not related to the viral stimulus nor to the normal host cell's proteins; the activity of interferons is not neutralized by viral antibodies or host-cell antibodies (10). Initially interferons were reported to be nonantigenic (21). This was undoubtedly because the antigenic mass in available preparations was too small to evoke an antibody response when injected into a heterologous host. Paucker and Cantell (22) demonstrated interferon antibodies in the serum of guinea pigs which had received injections of mouse interferon.

Interferons are active against a wide range of different viruses. The ability of interferons to inhibit the replication of many viruses while causing no apparent toxic effect in host cells emphasized their tremendous theoretical importance. At the same time it is clear that there are marked quantitative differences among viruses in regard both to their ability to stimulate interferon producing activity and their interferon sensitivity. There is some evidence to suggest that less virulent viruses stimulate cells to form more interferon than do highly virulent viruses. In fact, it has been suggested that this difference may be an essential basis for virulence of viruses. As to sensitivity, the replication of several arboviruses, particularly those of group A, is markedly inhibited by small amounts of interferons. Vaccina virus appears to be more susceptible than herpes simplex virus, whereas cytomegaloviruses have been reported to be insusceptible (23).

From present information, it is difficult to give an exact definition of what constitutes an interferon or an interferon system. It is possible to lay down certain criteria to which viral inhibitors must conform if they are to be classed as interferons. Obviously they must be separated in some way from the viruses or other substances used to induce their formation, since some of the nonviral stimuli may have antiviral activity. In addition, the following criteria must be met: (1) the inhibitors must be proteins, formed by the cells after contact with the inducing substance; (2) the antiviral effect must not result from nonspecific toxic effects of the inducing substances on the cells; (3) the proposed interferons must inhibit the growth of viruses in cells through some intracellular action involving both RNA and protein synthesis within the cells; and (4) the inhibitors must be active against a wide range of unrelated viruses.

The mechanism whereby interferons inhibit the replication of both RNA and DNA viruses remains unclear. It is well established that the antiviral effect is exerted at a relatively early stage of viral replication. Furthermore, it is generally accepted that no direct action on the infectious viral particle or its nucleic acid takes place and that virus attachment and penetration, viral uncoating, assembly and release are not actively involved. Thus, it has been established that cells develop resistance to viruses in response to interferons through an active process and not simply as a consequence of passive entry of interferons into the cell. Several investigators reported that actinomycin D inhibited the production and action of interferons (24, 25). Since actinomycin D has been shown to inhibit DNA controlled RNA synthesis, RNA must be required for both the production and action of interferons. Studies using the specific protein inhibitors, puromycin and fluorophenylalanine, showed that active synthesis of new proteins was also needed for the production and action of interferons (26). These effects of actinomycin D and protein inhibitors on interferon action indicate that the direct effect of interferons is to derepress a host genome action, leading to the formation of a new messenger RNA and the protein for which this messenger RNA is encoded.

The initial event in the interferon-cell interaction is contact between the interferon and the cell surface. Results of studies indicated little uptake of the interferon by the cells. Apparently the interferon, when it comes in contact with a susceptible cell, induces the cell to make a new RNA (27). This RNA serves as a messenger for the synthesis of a specific protein. It is the action of this protein that confers on the cell a state of resistance to viral infection. Studies have shown that this protein acts as a viral inhibitor by specifically combining with host cell ribosomes (28). This association between the inhibitory protein and the host cell ribosomes prevents the necessary association between the host cell ribosomes and viral messenger RNA. Thus, if the

viral messenger RNA-host cell ribosomal complex is not formed, then all other viral-coded proteins cannot be synthesized. All later events in viral biosynthesis, then, do not occur. For example, the viral DNA-dependent RNA polymerase noted with DNA viruses or the viral RNA-dependent RNA polymerase of RNA viruses do not appear to be formed. Further, the usual increase in enzymes, such as thymidine kinase, was not observed during vaccinia infections in interferon-protected cells (29). In summation, if viral messenger RNA cannot complex with the host cell ribosomes, then new viral proteins will not be synthesized. If new viral proteins cannot be synthesized, then no complete infectious viral particles will be formed or released in the interferon-protected cell.

This proposed model certainly contains the necessary elements to explain the most important aspects of interferon action and equally accounts for inhibition of both RNA- and DNA-containing viruses. If the target for interferon action is viral RNA in its capacity as messenger RNA, inhibition of both RNA and DNA viruses would result. A feature common to the replication of both these types is the function of a viral messenger RNA in the synthesis of viral proteins.

The aspect of interferon which is considered to be one of the most important is the possible role it may play in the control of viral diseases of man. As mentioned previously it is quite clear that the initial stages of recovery from viral infection are due more to some poorly defined host resistance mechanism, such as interferons, than to the presence of antibodies. A number of reports have shown that interferons appear in the blood, cerebrospinal fluid and pharyngeal washings of man during infection with various viruses (30, 31). Many viral infections require hematogenous spread to reach target organs during the first stages of infection in order to cause disease during later stages. Thus, interferons in the blood stream are in a unique position to spread throughout the body simultaneously with virus. Accumulated evidence strongly suggests that circulating interferons play a role in control of viremia by spreading to target organs in advance of the invading virus and thus prevent implantation of the virus. That the antiviral effect induced by circulating interferons can rapidly reach the brain, peritoneum, skin and other organs is shown by protection experiments in mice (32, 33) and man (34). Following the appearance of circulating interferons, the protective effect in the target organ, as would be expected, is non-specific for challenge virus. The exact origin of circulating interferons has not been determined, but it has been postulated that any cell may produce interferons when properly stimulated by viruses. It is probable that many different cell types, including white blood cells, produce interferons and release them into the bloodstream.

The lack of toxicity and broad antiviral spectrum of interferons make them potentially of great value as antiviral agents. It is likely that the first practical application of the interferon system will be for prophylaxis, rather than therapy in viral infections. Two approaches can be made in the prevention of clinical viral infections in man. The first considers the administration of exogenously prepared human interferon. Even though this may be feasible in the future, it now presents several problems. First, to be effective relatively large quantities would be required and the protection conferred would be of relatively short duration. In addition, any preparation for administration to man must be safe and hence problems of possible viral contamination must be solved. However, since the amino acid sequences of proteins of equal size are currently being studied, establishment of the amino acid sequence of interferons might eventually lead to preparation of synthetic substances with interferon activity.

A second approach to the clinical use of interferon considers the *in vivo* stimulation of endogenous human interferon, using either attenuated viruses or nonviral agents. Although high levels of interferon may be stimulated for several days by live virus vaccines, the delay in production of interferons and the subsequent immunity of the subject to repeat stimulation would limit their therapeutic potential. At present the most promising approach to the stimulation of human interferon lies in the use of macromolecular fungal products, such as statolon (16) or helinine (35). Even though these compounds have not yet been adequately purified for administration to man, this would appear to follow with further study.

Since supplies of suitable interferons for use in man have so far been available on a very limited scale, it seems unlikely that interferons will be-

come a general method in viral therapy or prophylaxis in the immediate future. It is quite apparent, however, that the ability of viruses or nonviral agents to induce the formation of interferons under experimental conditions, plays an important role in bolstering the host's defense mechanism. Whether or not interferons play a role in bolstering man's defense mechanism when formed naturally in subjects with viral infections can only be speculated. Even if interferons should not fulfill their highest expectations as antiviral agents, the study of their nature and action has led to a greater understanding of the virus-cell interaction. Utilizing the new information gained from these studies, man will find a new approach toward the eventual control of viral infections.

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Left Ventricular Endomyocardial Fibrosis and Mitral Incompetence

J. M. Fowler and K. Somers (Mulago Hosp, PO Box 7072, Kampala, Uganda)

Lancet 1:227-228 (Feb 3) 1968

The main clinical findings in twelve patients with left ventricular endomyocardial fibrosis (EMF) have been aggregated and form a unique syndrome of mitral incompetence. The syndrome is characterized by an early mitral systolic murmur, a third sound, and often an opening snap, ascribed to a mobile anterior cusp. Proof of the diagnosis of left ventricular EMF was obtained by cineangiography and at necropsy.

Deficiency of γM-Globulin in Celiac Disease

J. R. Hobbs (Royal Postgraduate Medical School, Ducane Rd, London) and G. W. Hepner

Lancet 1:217-220 (Feb 3) 1968

γM- globulin was deficient in 37% of 75 adults with celiac disease and each of five children with celiac disease. This deficiency was most frequent in untreated patients, and the level returned to normal in most patients treated with a gluten-free diet. Deficiency of γM-globulin may reflect lymphoreticular dysfunction in adults with celiac disease. No examples of nodular lymphoid hyperplasia were found. Only two patients had a moderate isolated γA deficiency.

The Physician, the Hospital and Society*

(The Role of the Obstetrician in Preventing Race Riots)

Robert E. Sleight**

In January, a Planning Committee of the American Hospital Association met in Chicago. As a member of this committee, one of our efforts was devoted toward developing the role of our nation's hospitals in meeting the serious social problems with which we are all confronted. It was recognized that "health" was only one, but an important segment, of these social problems. Other problem elements include education, employment, housing, sanitation and the inertia of many peoples, including some of our leaders.

It was pointed out that by this coming summer there will be an estimated 500,000 more people living in our major ghettos than there were last summer. These will be people who are potential rioters or sufferers from rioting.

What has this to do with obstetricians—other than with deliveries during the turmoils?

Namely, this: The quality of offsprings and the health of their mothers are the primary responsibility of obstetricians or of doctors performing obstetrical services.

There are still thousands of babies in the United States who are born out of hospitals. The latest data available from HEW is for 1965, published in 1967. These statistics indicate that there were 99,646 or 2.6% of the total births delivered out of hospitals. In Arkansas in 1965 there were 3,592 babies or 9.8% of the total born outside of hospitals. We ranked 47th among the 50 states in this undesirable statistic.

There are thousands of deliveries made in hospitals of mothers who have had no prenatal care and who will have no postpartum care.

In the United States in 1965 there were about 66,000 or 1.5% of the total deliveries made by "granny midwives". In Arkansas in 1965 there were 2,573 or 7% of the babies born under the care of midwives. Here, we rank 46th among the 50 states.

In the number of premature infants, Arkansas had 3,154 or 8.6% of our total births, ranking 46th.

One can readily comprehend that we have a serious obstetrical, infant, social and economic problem in Arkansas—one of the most serious in the nation.

All of us recognize that no prenatal care means a likelihood of a poorer quality child and mother. None of us would want our wives or daughters delivered by a "granny midwife"—although many in this room were probably born in homes and not hospitals—I was. Our goal must be to have every newborn delivered in a hospital, with adequate prenatal and postpartum care. Anything less will increase the input of fodder into the grist mill of social misfits. This, in turn, will increase our welfare departments' loads and will feed ever increasing numbers into the potential ranks of rioters.

For years we have had double standards of medical care—one for the paying or private patient and one for the indigent patient. Often these dual standards were condoned in the name of medical education. And, often, the indigent patient received superior care, although he frequently had to be greatly inconvenienced by excessive and long clinic visits.

These double standards are being rapidly reoriented into the typical *paying or private* patient and into the *new category, indigent* private patient, one who is financed by various governmental programs, such as: Medicaid, VRA, CCD, VA and other sponsored activities.

Often, the government-sponsored patients have been given the right and ability to select any doctor and the government will pay the professional fees. Physicians have been able and willing to see such patients under such professional fee guarantees.

What have been the results in states that have already activated Medicaid or Title XIX of the Social Security Amendments of 1965? In Cali-

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fornia, Wisconsin, Pennsylvania (throughout the nation) patients have left the long lines that generally exist at the indigent hospitals and clinics. They have turned to the private practitioners and to private or voluntary hospitals. *Terror* struck the hearts of many health educators. On the other hand, joy entered the hearts of many health leaders. I am in this latter group. Now is the time to move aggressively toward upgrading the health of those most in need. Obstetricians must be foremost in this move.

Medical education will have to be broadly based and will have to depend upon *both* private and non-private patients. Such has existed for many years in selected sites throughout the world. For instance, in the United States we have quality education making use of paying patients in Boston's Tufts-New England Medical Center, New York City's St. Vincent's Hospital, Rochester's Mayo's Clinic, etc.

Education of health workers is a privilege, obligation and right in which *all* patients, regardless of wealth, *will* and *must* participate. Educational institutions will and must admit private and sponsored patients irrespective of their source of payments. Former indigent patients will be cared for in the local hospitals by local physicians. Education, patient care and finances all should be on an improved level.

Now to return to the small national committee of which I orginally spoke. This committee prepared a concept which will probably be released this spring to all of the nation's health agencies and health leaders. In effect, it states that hospitals are one of the important centers of health care in their respective communities: That duplicate health systems should be avoided—that the various federally financed health programs should be worked into our existing system and not be run as separate entities.

How? How can we care for the numbers of people living in all communities who have had second-class care? Where will the manpower come from? Does such second- or third-class care exist in my community?

Yes, unfortunately, second-, third-, and lower-class care does exist in all areas:

The midwife who needs help and can't get it up in the "hollow"—

The patients in need who are denied hospital admission for various social and economic reasons, hospital bed shortages, etc.—

The forgotten stroke patient in the back room of a tenement—

The transportation and child care obstacles that impede health appointments—

The shortages of MD, Nursing, dentist, laboratory and other personnel which in turn curtail available services.

How can we expand our health system economically? The committee decided that "out-reach" or "satellite" clinics should or could be established in or near the heart of deprived areas. These clinics should be run at hours that are convenient to the patients in the areas, and would, in effect, serve as the private doctors for those who have had restricted or no care—in comparison with what we have known for our own families and private patients. True, thousands of physicians have been seeing large numbers of indigent patients, but we all realize that these doctors generally have not been able to handle the overwhelming volume.

The "out-reach" or "satellite" clinics could be established in an abandoned store front, an unoccupied house, the rear of a fire house, or any spot that will be convenient to the patients. In some instances, an existing doctor's office building, a public health clinic, or even a strategically located hospital will prove practical.

The same medical staff, nursing staff, and medical record system should be applicable to the out-clinics as they are to the hospital. Generally, a physician would be able to admit and follow the patient without the inconvenience of changing medical record forms, types of nursing care or even referring the patient to another physician. Obviously, the patient would benefit immeasurably.

How to staff these added facilities, when practically every hospital and community is currently severely short? Manpower use should be made of local untrained, partially trained, and trained individuals. The untrained and partially trained can be educated to their maximum potentials in the local hospitals, in the new satellite clinics, in the county health clinics, in doctor's offices, in local schools on off hours, etc. The trained indigenous people can be upgraded by bringing them into the activities and educational programs of the local hospitals and the local professional organizations. They can also be sent for short periods of time to larger medical centers in the state.

At the University of Arkansas Hospital in 1967 we accepted and trained aides from small, local hospitals as social work aides and occupational therapy aides and we have only begun to scratch the surface. We are preparing grant applications so that we will be able to expand the numbers and types of people who can be trained to assist nurses and doctors in various restricted fields such as: surgical technicians, obstetrical technicians, pediatric technicians, neurological technicians, etc. These programs are to train people who will assist nurses, not replace them. They will be trained for a few months in a limited area or field of responsibility. In status they will fit between the orderly-aide level and the nurse. In a few selected instances, they may fit between the LPN and RN—such as obstetrical nurse technicians.

Such innovations can and should be started in other communities. Aides, orderlies, drop-outs, middle-aged mothers, widows, military dischargees, are likely sources of trainees. Often they can earn as they work.

The financing of the new "out-reach" clinics can come from a number of sources: patients, to a limited degree; federal programs such as EOA, Head Start, the new Employment Security laws, Rehabilitation; and, sometimes from local tax funds.

These ideas will not be easily accomplished. Responsible community leadership will have to rise to the challenge. Personal sacrifices of time, energy, interest, and money will be required.

In addition, massive public educational programs will be required. Mothers, community leaders, hospitals, trustees, medical staffs, and political groups must be motivated.

What is the alternative? — Riots, bigger riots, disorders, more public battles, fires and explosions — not only in ghettos but in our own communities. Will the mobs continue to destroy, disrupt and kill in their own neighborhoods and let us go scott-free? Probably not! For our own preservation and for that of our families, we must all tackle the element of the total community problem that we are well qualified to handle—*health. Also,* we must encourage the other specialists and leaders to tackle their various other community problems. Time may have run out last summer, or perhaps will this summer. With the magnitude and spread of the riots, we are already late.

These thoughts may seem very unpleasant. We are all *"fed up"* with hearing about destructive disturbances and some may believe that there is no serious local problem in your or our communities.

As respected health leaders, we cannot remain complacent. We cannot afford *"tunnel vision"* nor *"selective hearing"*. We must constantly strive to make our land, our country, our world increasingly better—*simply* because we *have* lived here. Let no one leave this meeting with the belief that he has no role to play or that others should "carry the ball".

Cardiovascular and Respiratory Effects of Subarachnoid Block in Presence of Acute Blood Loss

W. F. Kennedy et al (Univ of Washington, School of Medicine, Seattle)

Anesthesiology 29:29-35 (No. 1) 1968

Subarachnoid block under normovolemic conditions was compared with subarachnoid block after 10 ml whole blood/kg body weight had been removed in 15 unpremedicated normal human volunteers. Each subject served as his own control. The results of cardiovascular and blood gas measurements revealed significant reductions in mean arterial pressure, cardiac output, stroke volume, and central venous pressure when subarachnoid block was performed after acute blood loss. Mean arterial pressure was about 30% below the control value, cardiac output was reduced 15%, stroke volume had decreased 12% to 22%, and central venous pressure was 66% below the control value. Subarachnoid block should be used with caution in the presence of acute untreated blood loss.

Mucocele of the Appendix

C. Northcutt, M. D., P. Millar, M. D., J. Morgan, M. D., F. Stone, M. D., J. Bethell, M. D. and M. John, M. D.*

INTRODUCTION

Rokitansky first described mucocele of the appendix in 1842. At the present time more than 600 cases have been recorded in the medical literature.[1] These 600 cases probably represent only a small percent of the actual cases that have been found. Its incidence varies from 0.1 to 0.3% of total appendectomies.[4]

Figure 1 (scale inches)

CASE REPORT

A 30 year old Caucasian female with an unremarkable past history was seen with a present illness of severe umbilical and right upper quadrant cramping pain. Examination was not remarkable except for right upper quadrant guarding and a fullness in the right lower quadrant. The fullness was thought by two examiners to be a slightly distended cecum. Pain subsided within a few minutes, but occurred again in a few hours. The second episode was similar to the first. The patient was afebrile. Laboratory and x-ray workup was negative except for a poorly visualized gall bladder which contained one radiolucent stone.

A cholecystectomy was performed. A mucocele of the distal half of the appendix was found. The mucocele was 10½ centimeters long and the greatest diameter was 3½ centimeters. The mucocele involved only the distal one half of the appendix. The proximal portion of the appendix was normal. The appendix and its mesentery were twisted 360 degrees in a clockwise fashion. There was no acute inflammation or vascular compromise.

The mucocele contained a gelatinous opaque yellow material. Microscopic sections of the appendix revealed the mucosa to be essentially absent except in one area where a tall columnar epithelium was noted. Post operative course was not remarkable.

DISCUSSION

Various theories have been advanced to explain the formation of a mucocele of the appendix. The most plausible explanation is the accumulation of mucus in the appendix due to obstruction of its lumen[2], usually due to chronic inflammation.

Brandes and Peretz[5] documented a case of obstruction due to torsion rather than inflammation. Mucoceles may also arise from a teratoma with a pseudomucinous epithelium of the appendix.

Most cases present with symptoms of acute appendicitis[4]. Some present with chronic abdominal pain and a palpable mass. Few are symptomatic—most are discovered at routine physical examination, at surgery, or at autopsy. They often simulate ovarian masses[5], colon tumors[1], or as in this case nonspecific abdominal pain.

Mucocele of the appendix presents an interesting diagnostic problem and is usually not complicated. The most serious complication is rupture with the development of pseudomyxoma peritonaei. Bernhardt and Young[3] presented an excellent review of this perplexing problem.

SUMMARY

A case of mucocele of the appendix is presented to point out a rather uncommon lesion that may simulate various types of abdominal problems.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
WILLIS E. BROWN, M.D., Professor and Chairman
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Microinvasive Carcinoma of the Uterine Cervix*

W. Ragon Thompson, M. D.

INTRODUCTION

Microinvasive carcinoma of the cervix, also called occult carcinoma of the cervix, early invasive carcinoma of the cervix, preclinical cancer of the cervix, Stage 1a carcinoma of the cervix, incipient carcinoma of the cervix is currently under extensive study and investigation. Even though this lesion defies an universally accepted definition many people have tried to outline criteria for its diagnosis. There is no generally accepted definition and thus, as might be expected, there is no agreement on the best treatment for this lesion.

In the past the Department of Obstetrics and Gynecology at University of Arkansas Medical Center has generally treated this lesion, in patients of suitable general physical condition, with a radical hysterectomy (Wertheim) with pelvic node dissection. Because of the clinical data available it seemed worthwhile to review our cases so treated as a retrospective study, as an aid to definition, and as to choice of therapy.

HISTORICAL BACKGROUND

The classification accepted by the General Assembly of the International Federation of Gynecology and Obstetrics at the Congress in Vienna, 1961, is as follows:

Stage 1: Carcinoma strictly confined to the cervix

Stage 1a: Cases of early stromal invasion (preclinical carcinoma)

Stage 1b: All other cases of Stage 1

Stanley Way[22] feels that the cervix must be normal appearing, there must be no symptoms, and there must be unequivocal stromal invasion. Christopherson[3] in his review listed the following criteria: (1) No gross lesion (2) Exclude quesionable invasion lesions (3) Exclude specimens with confluent areas of invasion, even though microscopic and not more than 3 to 4 mm. in diameter. Margulis[15], et al, felt that the criteria for an in situ lesion must be satisfied, and glandular involvement should not be considered invasion; he defines the lesion as (1) breakthrough of basement membrane, (2) presence of nonconfluent cancer tongues, (3) stromal penetration not exceeding 5 mm or 2½ low power fields when using 10 x objective and (4) no invasion of lymphatics or capillary spaces. He further states that one should not expect a gross lesion and that the coincidental cervical erosion and cervicitis with some postcoital bleeding or intermenstrual spotting may or may not be encountered.

We have chosen to follow the microscopic criteria outlined by Margulis in our review of cases. Some patients with abnormal or suspicious gross lesions were included for reasons which will presently be explained.

MATERIAL AND METHODS

Clinical charts and pathological slides of patients who underwent Wertheim hysterectomy at the UAMC from 1954 through 1967 were reviewed. The charts were evaluated for presenting symptoms, presence of a gross cervical lesion, morbidity following radical hysterectomy, evidence of recurrence and length of follow-up.

The slides of the cone specimens, punch biopsies and hysterectomy specimens were scrutinized for those cases that would adequately fulfill the criteria previously outlined. Those cases that did not fulfill the stipulations were excluded from the study. This study includes

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only the Wertheim hysterectomies done during this period of time, for microinvasive cancer of the cervix. In some of the early cases only four quadrant punch biopsies following Schiller stain were done for initial diagnosis. In these cases the hysterectomy slides were used to make certain that the lesion was not in fact deeper than would appear from the initial biopsy. In cases diagnosed by cold knife conization, the fulfillment of our criteria could be determined from the cone specimen alone. The lymph nodes and parametrium were examined for evidence of spread or metastasis.

RESULTS

Forty-nine patients who underwent Wertheim hysterectomy during this 13 year period were found to fulfill these criteria for a diagnosis of microinvasive carcinoma of the cervix. Of these patients 25 were Negro and 24 were Caucasian, which is quite out of proportion to our general race relationship of 65% Negro and 35% Caucasian.

TABLE I

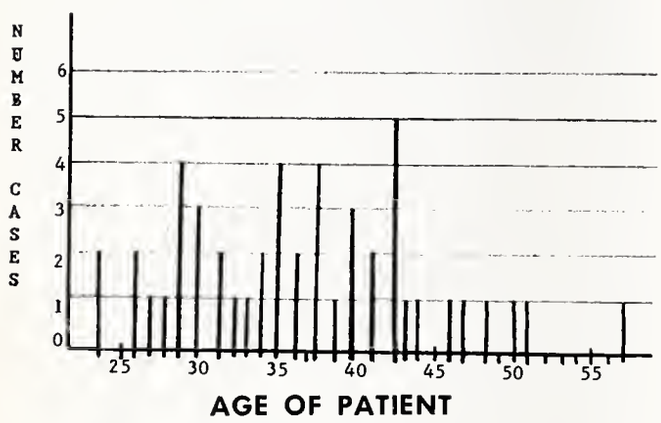

Table I lists the age incidence in our patients, the average age being 36.9 years, ranging from 24 to 57 years of age. One can readily see the high incidence of the lesion in the thirties and early forties. Parity ranged from 0 to 21 with an average of 5.7.

TABLE II

Class I	1
Class II	4
Class III	15
Class IV	8
None	19
Abnormal	2
	49

Table II shows the classification of the Pap smears on those patients on whom this test was performed. The majority of patients who did not have Pap smears were seen prior to 1960. Almost all patients on whom Pap smears were done were found to be abnormal.

Table III lists the presenting symptoms of these patients. The number totals more than 49 because some of the patients presented with multiple symptoms. Of special note is the large number of patients (25 out of 49) who were found to have an abnormal Pap smear or a suspicious lesion on routine examination.

TABLE III
PRESENTING SYMPTOMS

Discharge	9
Intermenstrual Bleeding	5
Post-Coital Bleeding	12
Menorrhagia	4
Postmenopausal Bleeding	1
Dysmenorrhea	1
Pelvic Pain	1
No Symptoms (routine exam.)	25

Evidence of a visible gross lesion and other initial findings are noted in Table IV. The term cervical erosion is an unfortunate one, but it has been used extensively in this institution as well as in gynecological circles. While a poor term, it is descriptive and well understood to indicate those patients found to have a granular lesion at the external cervical orifice due to overgrowth of columnar epithelium. It is interesting that ten of the patients had what could be described as a grossly abnormal lesion, but still were found to have a diagnosis of only microinvasion. The description of these suspicious lesion are listed in Table V.

TABLE IV
Evidence of Cervical Lesion On Initial Examination

No Lesion	6
Mild Erosion	26
Moderate Erosion	4
Severe Erosion	2
Cone Prior to Referral to UAMC	2
Grossly Abnormal or Suspicious Lesions	10

TABLE V

1. 1 cm. granular erosion
2. "Small" endophytic lesion
3. 2–3 cm. eroded mass on anterior lip
4. 1 cm. granular lesion
5. Friable white plaques on cervix
6. 1½ cm. ulcerative lesion of posterior lip
7. 2 cm. erosion
8. 1 cm. raised, firm lesion
9. Hard friable lesion around endocervix
10. 2 cm. lesion on anterior lip

Of the 49 patients, the diagnosis was established by cold knife conization in 22, and by four quadrant punch biopsies utilizing iodine staining in 27 patients.

TABLE VI

Residual Lesions on Hysterectomy Specimens Following Cold Knife Conization

No Residual	7
Residual Atypia	2
Carcinoma In Situ	9
Microinvasion	4

Examination of the hysterectomy specimens postconization showed various residual lesions ranging from no residual lesion to residual microinvasion. No patient who had a conization was found to have deep residual carcinoma on the hysterectomy specimen.

While the majority of the 27 patients who were diagnosed by punch biopsy alone had residual microinvasion at the time of hysterectomy, it was surprising to find 4 patients with no residual lesion at the time of hysterectomy.

TABLE VII

Residual Lesions on Hysterectomy Specimens Following Punch Biopsies Only

No Residual	4
Residual Atypia	1
Carcinoma In Situ	9
Microinvasion	13

No patient fulfilling the strict criteria for microinvasive carcinoma of the cervix by which our slides were judged had metastasis to the parametrium or pelvic lymph nodes. The number of nodes removed at Wertheim ranged from 3 to 32 with an average of 14 nodes per hysterectomy. In some the slides were not available but the pathology reports listed "all nodes negative for metastasis" and an exact number of nodes was not given.

Morbidity following hysterectomy included those listed in Table VIII. The fistula rate was 14.3%, an acceptable figure but more unfortunate are the two patients who required nephrectomy, one following a fistula, the other following a ureteral stricture. However, both patients are alive and well at present, one eight years postoperative and the other ten years postoperative.

Follow-up on these patients was only fair in spite of constant urging. Six patients were lost or followed for less than six months. Although the follow-up period is still too short for some patients, no patient is known to have died of cancer. One patient died at another hospital and the cause of death is not known. However, she was well and felt to be free of disease when seen for return visit three years post Wertheim.*

TABLE VIII

Morbidity Following Wertheim Hysterectomy

INFECTIONS			23
Transient Temp. Elevation		20	
Persistent Temp. Elevation		2	
Pelvic Abscess		1	
GENITOURINARY			9
Ureterovaginal Fistulae		7	
Repaired	5		
Closed Spontaneously	1		
Required Nephrectomy	1		
Bladder Atony		1	
Ureteral Stricturing requiring Nephrectomy		1	
CUFF HEMATOMA			1
WOUND DEHISCENCE			1
NONE			16

Two other patients are known to have died, one of heart disease, the other of hypertension and pneumonia. No deaths can be attributed to the surgery or subsequent therapy.

DISCUSSION

Treatment of microinvasive carcinoma of the cervix by radical hysterectomy and node dissection at this institution in the past has afforded an excellent opportunity for study.

None of our patients had parametrial or lymph node metastasis at the time of surgery. Edwards et al reported 43 patients who underwent Wertheim for carcinoma of the cervix, Stage I, at this institution and found an incidence of 4.7% nodal involvement. No patient who had microinvasion had positive lymph nodes. It was their

opinion that bilateral pelvic lymphadenectomy may not be warranted for questionable and early focal microinvasive squamous cell carcinoma, but wide parametrial and vaginal cuff excision probably are indicated.

It is also the opinion of this author that Wertheim hysterectomy and pelvic lymphadenectomy is probably over-treatment for patients with a definite cone biopsy diagnosis of microinvasion. This opinion is held also by others. [2,5,8,9,15,16,17] Stanley Way[22] in reporting fifty-four patients with microinvasion, 28 treated with radical hysterectomy without nodes and 26 treated with radical hysterectomy with node dissection noticed no difference in the five year survival of the two groups.

Christopherson[3] in reporting 20 cases of microinvasion found one patient to have a positive lymph node palpable at laparotomy and she was closed and irradiated. He felt that there was "every reason to believe that the end result of treatment for microinvasive cervical cancer in its earliest stages will approach that of carcinoma in situ". He continues, "it would seem reasonable from our experience that treatment need be no more radical for microinvasive carcinoma than for carcinoma in situ and that the morbidity and mortality from more radical therapeutic approach might well exceed the dangers of metastasis".

In a review of this lesion, Enterline[7] concluded that at present it seems that lymph node metastasis can occur but must be quite rare in the microinvasive Stage I and somewhat more common, although still unusual, in the small "confluent" occult, carcinomas under one cm. He felt that if invasion was dubious or if definite but consists of a focus of microscopic dimensions of a few cells extending through the basement membrane, hysterectomy with wide vaginal cuff seemed reasonable. He emphasized the necessity for a multisection technique cone biopsy as essential for "rational clinical judgment and that the gynecologist and pathologist can best serve the patient by a close cooperative endeavor".

Margulis[15] in his review listed 27 patients with microinvasion. He felt that from his results and those of other authors that carcinoma in situ of the cervix with extension, henceforth staged as la carcinoma of the cervix (if diagnosed precisely), can be treated as its forerunner, carcinoma in situ.

Morton[17] classified incipient carcinoma of the cervix into 7 categories:

1. Carcinoma in situ
2. Carcinoma in situ with glandular involvement
3. Carcinoma in situ with plugs of cancer cells without identifying glandular epithelium; questionable glandular involvement
4. Carcinoma in situ with questionable invasion
5. Superficial cancer with definite invasive downgrowth into the stroma, but not more than 5 mm.
6. Carcinoma in situ with lymphatic vessel involvement
7. Multicentric carcinoma in situ

He recommended hysterectomy with wide vaginal cuff for the first five categories, abdominal hysterectomy with lymphadenectomy in Category 6, and total hysterectomy with wide cuff with local excision of multiple lesions for Category 7. He feels that a cone is essential to make this diagnosis.

Boyes and Fidler[2] reported three cases of lymphatic vessel extension and felt that one may consider conservative therapy for microcarcinoma only when a good cone biopsy is received and 150 to 200 well prepared slides are cut from this cone. If these step serial sections show no lymphatic invasion, or confluent growth, then total hysterectomy may be considered as definitive therapy provided long term follow-up is feasible.

Friedell and Graham[11] reported 40 cases of early invasive carcinoma of the cervix treated with Wertheim and lymph node dissection and none of these cases reported had positive nodes. One case had a recurrence at the vaginal cuff. They reported 8 or 20% fistula rate in the 40 patients, 3 of whom required nephrectomy and

*One additional patient was said to have had early invasive carcinoma of the cervix and later died of carcinomatosis. However the slides were from another hospital and have been returned and are not available for review. This patient had no residual carcinoma on hysterectomy specimen and all nodes were negative. She was seen for one follow-up visit after her surgery and was not felt to have any recurrence. However, she expired at another hospital and an autopsy was not done. The only record available is of that of the State Tumor Registry, which states that she died of carcinomatosis. As the slides were not available and the diagnosis could not be confirmed as only microinvasion and definite cause of death is not known this patient was excluded from the series.

the other 5 closed spontaneously. As an addendum to this paper they recorded one additional patient with one iliac node metastasis.

Ullery[21] reported 28 patients with microinvasion, 21 treated with cobalt 60, plus Wertheim, 2 with irradiation plus Wertheim, 2 radiation, one hysterectomy, one Wertheim alone. Of the 24 patients with Wertheim, all nodes were negative. No postoperative specimen showed residual invasion but 5 showed residual carcinoma in situ. He included in his report a 61% postoperative complication rate. All are alive and well except one patient who committed suicide. Fourteen are less than 5 years post therapy and 14 are more than 5 years post treatment.

Some authors feel that the treatment for this lesion should be more extensive.

Decker[4] reported a case of questionable invasion with lymph node metastasis and felt it wise to treat the patient with postoperative irradiation if positive nodes were found. He felt on the basis of this that lymph node metastasis can occur in the earliest stages of carcinoma and patients suitable for surgical treatment should be treated with radical hysterectomy and pelvic lymphadenectomy. In patient not suitable for surgery, radiation therapy should include treatment of pelvic nodes with deep x-ray.

Antoine[1] and Schuller[19] in Vienna feel that because microcarcinoma has the possibility to invade blood vessels and lymphatics, the therapy should be the same as any other invasive carcinoma, that is, radical operation or irradiation. Schuller added one case of microinvasive who had a positive lymph node.

Lock & Greiss[13] in North Carolina have also found one positive node in microinvasion in some 40 Wertheim hysterectomies. Song and Turner[20] reported five cases of carcinoma in situ with lymph vessel involvement, two of which had pelvic node involvement.

CONCLUSIONS

It would thus seem from this review that lymph node metastasis can occur with early invasive lesions and even with carcinoma in situ. However, the incidence appears to be very low and it is doubtful that this low incidence of nodal involvement justifies extensive surgery with its accompanying high morbidity rate.[5, 19] Most reports are quite pessimistic about patient survival with positive nodes.

It must be emphasized that in order to make a precise diagnosis of microinvasion, a cold knife conization must be performed and adequate step sections examined. Meticulous evaluation by both the gynecologist and pathologist is necessary to determine the extent of involvement and the presence of vascular channel involvement.

SUMMARY

1. Forty-nine patients with microinvasive carcinoma of the cervix as defined by Margulis, who underwent Wertheim hysterectomy with bilateral pelvic lymphadenectomy have been studied.

2. None of the patients had pelvic lymph node metastasis.

3. It would seem that total hysterectomy with excision of a wide vaginal cuff would be adequate therapy for this lesion.

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Ge(Li) Semiconductor Detectors as High-Resolution Gamma-Ray Spectrometers in Nuclear Medicine

T. Nagai and S. Nishu (National Institute of Radiological Sciences, Chiba, Japan)

J Nucl Med 9:79-82 (Feb) 1968

The properties of Ge(Li) p-i-n detector as a high resolution gamma-ray spectrometer and the results of studies of several complex spectra from radionuclides commonly used in nuclear medicine, are described: Over the energy region from 122 kev to 1.3 Mev the pulse height response was found to be linear. The resolution for 662 kev photon was about 14 times better than that observed with a NaI (Tl) detector. There was more intense Compton distribution when the sources were placed in a ORINS neck phantom. Semiconductors arranged in a mosaic array might be used as a radioisotope image camera, and the principle of position-sensitive semiconductor counters might be introduced into radioisotope imaging technique in the near future.

Differential Ferrioxamine Test in Rheumatoid Disease, Neoplastic and other Hematological Disorders

E. N. Wardle and M. C. G. Israels (Univ and Royal Infirmary, Manchester, England)

Brit J Haemat 14:5-11 (Jan) 1968

The chelatable body-iron test shows that one third of patients with rheumatoid disease have a high body iron in the face of low serum iron values. This may reflect an altered reactivity of the reticulum cell related to the activity of the disease process, resulting in increased iron in the reticulum cells of the marrow, liver, and spleen, and possibly in the synovium of the diseased joints. The test may be clinically useful to predict the response of the rheumatoid patient to iron and, in particular, to detect those with genuine iron-deficiency anemia. High chelatable body-iron values are also found in advanced cases of reticulosis and carcinoma at the same time as a lowering of the serum iron and an increase of the serum mucoprotein occur concurrently in these patients.

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

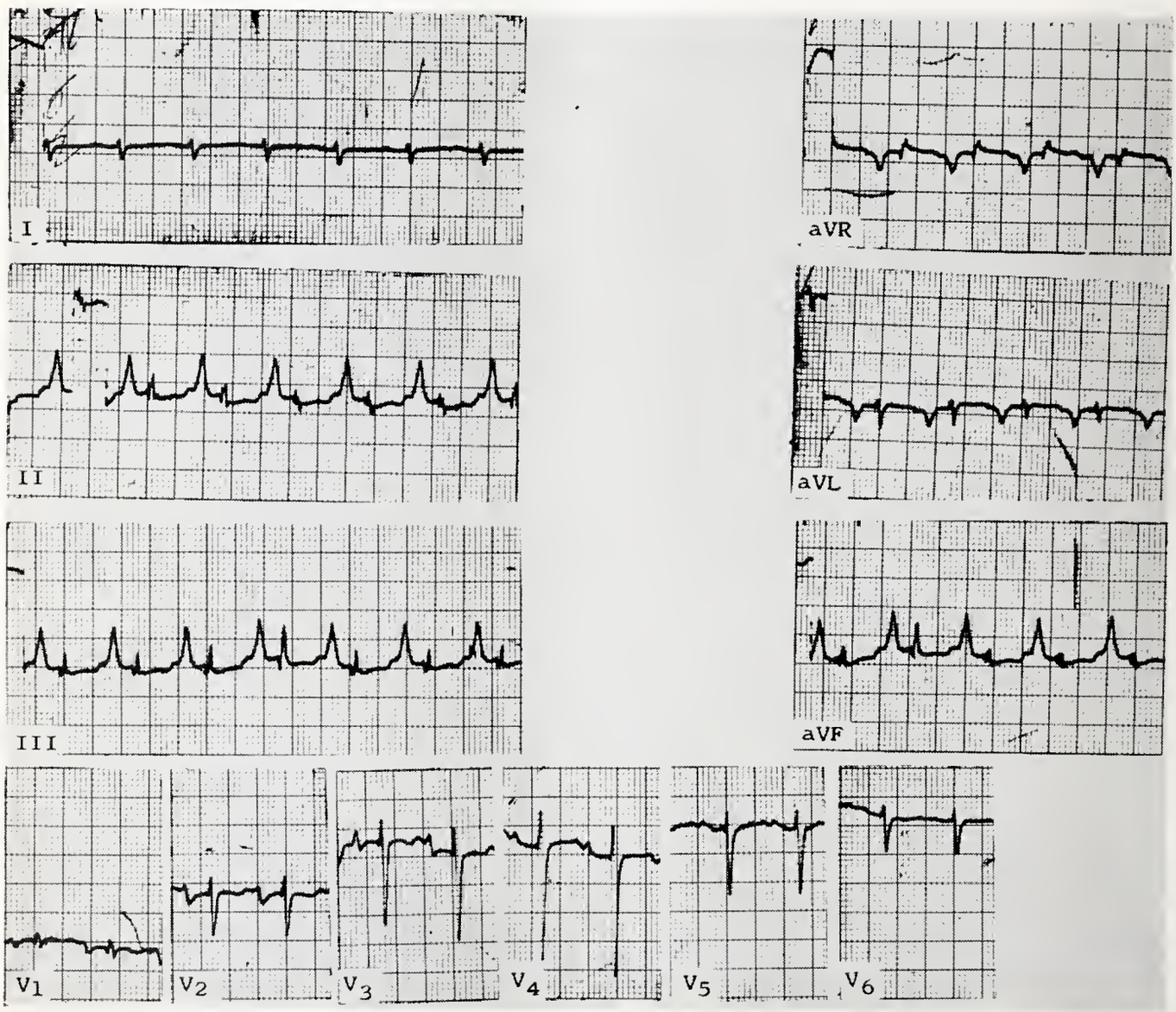
See **Answers on page 155**

HISTORY: 15 year old boy with pain in the right knee for two weeks.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 57 SEX: Female BUILD: Slender BLOOD PRESSURE: 100/70
CARDIAC DIAGNOSIS: Cor Pulmonale
OTHER DIAGNOSES: Chronic obstructive pulmonary disease.
MEDICATION: For acute, severe respiratory insufficiency
HISTORY: Long history of obstructive pulmonary disease and heart failure.

See Answers on page 155



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

PH

PUBLIC HEALTH AT A GLANCE

Emergency Medical Services Standard

It is a known fact that as long as we have automobiles, we shall have automobile accidents.

Recognition of this inevitably led in 1966 to the passage of federal legislation to engineer more safety into our automobiles, to "package" occupants in a safer environment so that even in a crash situation injuries may be minimized.

The same rationale lies behind the newly asserted effort to incorporate more safety into the highway system itself. The Bureau of Public Roads is spearheading a campaign to clear roadsides of unnecessary hazards that become "death traps" for errant vehicles. It is inevitable that a certain number will, for various reasons, stray off the traveled roadway at one time or another.

In short, much of the nation's new highway safety program is an accommodation of human failing.

It is an extension of this realistic philosophy that has caused much attention to be focused on the quality of emergency medical care in the United States. If we shall always have some accidents, it is incumbent to minimize the human loss resulting from them. This, simply stated, is the purpose of the new federal highway standard on "Emergency Medical Services".

After an accident, the quality of first-aid and the other emergency treatment often is a matter of life or death. How good, how prompt, is such care on a nationwide basis?

One expert has commented that American emergency care is in the "dark ages". The overwhelming weight of available evidence would tend to bear him out.

A recent study by the National Academy of Sciences noted that a soldier seriously wounded on the battlefields of Vietnam stands a materially better chance of survival than does a similarly wounded individual on an American highway. In Vietnam a wounded soldier is in a hospital within an average of 30 minutes. This speed is the exception in the United States, especially in rural areas.

The U. S. Congress has found the present situation seriously inadequate. In the Highway Safety Act of 1966 it specified the states must improve their emergency services and other safety programs, by December 31, 1968 or loose 10% of their federal matching funds for highway construction. In Arkansas this would amount to some 4 million dollars.

On June 27, 1967, the National Highway Safety Bureau issued a standard that requires a state's emergency program to include:

1. Quick identification and response to accidents.
2. Proper first-aid measures, both at the scene and in transit.
3. A transportation system to bring the injured and definitive medical care together in the shortest practicable time.

Here is the text of the standard (4.4.11)

"Each state, in cooperation with its local political subdivisions, shall have a program to insure that persons involved in highway accidents receive prompt emergency medical care under the range of emergency conditions encountered. The program shall provide, as a minimum, that:

I. There are training, licensing, and related requirements (as appropriate) for ambulance and rescue vehicle operators, attendants, drivers, and dispatchers.
II. There are requirements for types and numbers of emergency vehicles including supplies and equipment to be carried.
III. There are requirements for the operation and coordination of ambulances and other emergency care systems.
IV. There are first aid training programs and refresher courses for emergency service

personnel, and the general public is encouraged to take first aid courses.

V. There are criteria for the use of two-way communications.

VI. There are procedures for summoning and dispatching aid.

VII. There is an up-to-date, comprehensive plan for emergency medical services, including:

A. Facilities and equipment

B. Definition of areas of responsibility

C. Agreements for mutual support

D. Communications systems

VIII. This program shall be periodically evaluated by the State and the National Highway Safety Bureau shall be provided with an evaluation summary."

What the Congress had in mind when it asked for an Emergency Services Standard is summed up in an excerpt from a report of the House Public Works Committee:

"An essential part of the State safety program should be the development of an emergency facilities system. This will require the advice and services of experts and personnel in medicine, law, engineering, communications, and law enforcement, at a minimum.

"Techniques should be instituted to insure the fastest possible notification of an emergency —call boxes, aerial surveillance, patrols, closed circuit television, and any other feasible system. Control centers should be established, manned, and equipped to send to the emergency scene people and equipment capable of providing medical care, transportation of the injured, prompt assessment of all the elements involved in the accident, and restoration of traffic movement.

"We can no longer be content with procedures that are directed at sweeping up the highway and deciding in that short interval only who was at fault."

Why has so much concern been expressed? Because millions of ambulance and rescue personnel lack instruction in basic first aid.

Secondly local authorities have neglected their responsibility to provide the best possible emergency medical services.

And, research on trauma has not been supported or identified on a level consistent with its importance as the FOURTH leading cause of death in the United States today.

A Memphis hospital reported after a five-year survey that virtually none of the seriously injured auto accident victims admitted to its emergency room during the period "had received adequate or effective preadmission first-aid treatment".

We expect, and indeed require, that those caring for our health, our plumbing, even our hair be adequately trained and licensed. This is not so of those who handle the sick and injured during an emergency. This should be one of the most important groups regulated.

Who should handle ambulance services? This is up to each and every community, to do as they think best.

What is important, is that no matter who operates emergency ambulance service in a community, be it individual, private business, or city government—the need to do it properly is still there—to protect our people from additional injury.

When people call for an ambulance they assume that they are getting skilled, well trained help. The Public has the right to assume this.

The national accident problem is a serious one. There are over 10 million disability producing accidents each year. Last year 50,000 people died in traffic accidents on the streets and highways of our nation. 640 of these in Arkansas.

It is estimated that 20,000 people die needlessly each year due to the lack of proper emergency care at the scene of an accident and enroute to the emergency department of a hospital.

The primary injury is not always the killer, but rather air way obstruction, respiratory depression or shock which accounts for death. Well trained ambulance crews can handle these difficulties.

Ambulance transportation problems are many and complex.

The Division of Safety, of the Arkansas State Department of Health, has just completed a comprehensive inventory of ambulance services in Arkansas. The results of this inventory will help establish guidelines for program planning and implementation.

A summary of this inventory will appear in a later issue of the Journal.

EDITORIAL

Hypertension and Neuro-Humoral Substances

Alfred Kahn, Jr., M. D.

Hypertension and the neuro-humoral relationships associated with it are the object of continuous research. Despite some progress in handling human hypertensive cases, the failure to clearly prove a lengthened life expectancy in patients treated with hypotensives has been a rather disappointing surprise; this is especially true in view of the decreased number of serious cardiac and cerebro-vascular complications in treated hypertensives. Clearly our knowledge of essential hypertension is very incomplete; and as time goes by, more and more cases that were assumed to be essential hypertension fall into the so-called secondary hypertensive group—namely secondary to renal disease. At first renal hypertension was about the only type of known secondary hypertension, but now the list includes brain tumors, pituitary disease, thyroid disease, coarctation of the aorta, pheochromocytoma, and other adrenal diseases, etc.; the most recent arrival in this group is the adrenal tumor producing aldosterone.

Conn, Rovner, and Cohen (Annals of Internal Medicine, Volume 63, page 266, August, 1965) have summarized much of the newer information concerning the relationships of neuro-humoral substances and blood pressure in an article entitled "Normal and Altered Function of the Renin-Angiotensin-Aldosterone System in Man." Normally Renin, an enzyme, is passed into the blood from the walls of the arteriole leading to the glomerulus. Renin acts on a polypeptide substance manufactured in the liver; this eventually becomes angiotensin II, which is a strong vasopressor. Angiotensin II acts on the adrenal cortex to release aldosterone which has a potent control over electrolytes. They state that Renin is released possibly by the amount of stretch which the juxta glomerular cells receive or by the amount of sodium stimulation of the cells of the macula densa portion of the juxta glomerular apparatus. If stretch is the stimulus, the more the stretch, the less Renin released, the more sodium excreted by inhibition of absorption of the distal tubule and ultimately the plasma volume is decreased. Additionally, they state that when the plasma volume is overexpanded there is a partial block of sodium reabsorption in the proximal tubule. Low sodium diets and upright posture stimulate the release of Renin to conserve sodium. If a person is on a high sodium diet, this effect of upright posture is decreased. Conn et al extended the above information into pathological states and described primary and secondary aldosteronism. Primary aldosteronism was considered an intra-adrenal disorder unassociated with edema. Secondary aldosteronism was overproduction of aldosterone stimulated by an outside source; this is caused by excessive release of Renin; many of these conditions are associated with edema as congestive heart failure, nephrosis, and cirrhosis; the degree of adosteronism excess varies depending on the amount of sodium reaching the distal tubule. Cyclic edema of menopausal women is said to be excessive release of aldosterone to normal amounts of Renin.

The authors have done research in the relationship between primary and secondary aldosteronism in hypertension. The triad of high blood pressure, low blood potassium, and increased aldosterone occurred in three disorders: primary aldosteronism, malignant hypertension, and renovascular hypertension. In the latter two groups the cause is excessive outpouring of Renin from a diseased kidney, while in primary

aldosteronism the Renin-Angiotensin mechanism is suppressed below normal. In primary aldosteronism all the usual stimuli which increase Renin levels fail to do so: upright posture, low sodium diet, etc. Thus the level of Renin is the deciding factor in primary vs. secondary aldosteronism. If a high aldosterone level is found with low Renin output, primary aldosteronism is present and it is curable by surgical excision of the tumor. It is of interest that hypokalemia may not be present until late in the course. Twenty per cent of hypertensives may have primary aldosteronism.

Conn has reviewed hypertension and its relationship to potassium ion and carbohydrate tolerance (New England Journal of Medicine, Volume 273, page 1135, November 18, 1965) Conn states that patients with primary aldosteronism have a decreased tolerance for glucose. Since primary aldosteronism may make up 20% of the population who are thought to have essential hypertension, imparied glucose tolerance which has been reported to be found in the hypertensive population may really be the reduced glucose tolerance of primary aldosteronism rather than true diabetes mellitus; this is important as the imparied glucose tolerance of primary aldosteronism is reversible whereas diabetes mellitus is not. Carrying this reasoning further, Conn points out that the cases of primary aldosteronism which make up a sizeable part of the hypertensive population have a deficit of total body potassium even though their serum potassium is normal. This deficit in potassium might in turn affect the pancreas beta cells and decrease the insulin output. Furthermore, low body potassium induced in normal men will decrease the carbohydrate tolerance; this occurred with normal serum potassium levels; this decreased glucose tolerance is reversible by administering potassium. It is of greatest interest that patients with primary aldosteronism with impaired glucose tolerance can be reverted to a fairly normal curve by administration of potassium; the blood pressure is unaffected by the potassium administration. Conn concludes from his work that 3,000,000 people classified with essential hypertension have primary aldosteronism and that 50% of the cases of primary aldosteronism have imparied glucose tolerance in at least 50% of the cases; perhaps some cases who seem to primarily have diabetes mellitus rather than high blood pressure are also primary aldosteronism.

McGiff and Fasy have published on "The Relationship of the Renal Vascular Activity of Angiotensin II to the Autonomic Nervous System" (Journal of Clinical Investigation, Volume 44, page 1911, November, 1965). They point out that it was formerly thought that angiotensin II acted directly on the muscular wall of blood vessels. More recent work indicates that this response is altered by both the autonomic nervous system and renal ischemia; also, for example, angiotensin II increases the output of catecholamines and decreases the threshold point of sympathetic stimulation. Using the renal vasculature as a test bed, various drugs which affect the autonomic nervous system were tested for their effect when used in conjunction with angiotensin II. McGiff and Fasy report that angiotensin II vasoconstrictor effect is opposed by drugs "whose primary effect is on the sympathetic post ganglionic fiber (Bretylium and Guanethidine) or by agents that alter sympathetic activities by a central action (hydralazine)." The effect is unopposed by drugs which have their action at the sympathetic alpha receptors as phentolamine and by drugs that "do not interfere with the release of the sympathetic neuro-transmitter" as hexamethonium. Using an acute renal denervation indicates that angiotensin II has at least two effects on the kidney; I-V angiotensin's effect was eliminated but direct arterial injection was not. McGiff and Fasy feel that the renal response of angiotensin II depends partially on catecholamines since reserpine abolishes or reduces angiotensin effect. Angiotensin potentiates the effect of sympathetic nerve activity.

Goorno and Kaplan (Annals of Internal Medicine, Volume 63, page 745, November, 1965) have presented studies on "Renal Pressor Material in Various Hypertensive Diseases." They used two methods: Angiotensin infusion test and broassay of pressor material in the renal blood. The angiotensin infusion test consists of measuring the amount of angiotensin required to elevate the diastolic blood pressure 20 MM Hg the renal vein blood was obtained by catherization and measured by rat assay. The studies indicated that essential hypertensives were sensitive to angiotensin and elaborated no pressor material in the renal venous blood; patients with

proved acute glomerulo-nephritis reacted like essential hypertensive patients with chronic pyelonephritis and chronic renal disease also behave like essential hypertension. In accelerated high blood pressure, malignant hypertension, and renal vascular disease, there was a positive test for pressor material in the renal blood and were relatively resistant to angiotensin. There was a correlation of these two tests in 40 of 45 patients, thus as a first screening method to separate the surgically remediable hypertension (renal vascular disease) from essential hypertension the angiotensin infusion test could be used with some degree of confidence.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D. C.—President Johnson designated the Secretary of Health, Education and Welfare, Wilbur J. Cohen, as chief federal official for health policies and programs.

An HEW reorganization plan, recommended by Cohen and approved by Mr. Johnson, makes the secretary:

1. The President's chief adviser on federal health policy and programs.
2. Responsible for coordinating all federal health programs.
3. Head of a new Federal Interdepartmental Health Policy Council.

The reorganization also included creation of a Consumer Protection and Environmental Health Service as a unit of the Public Health Service and transfer of the Division of Regional Medical Programs from the National Institutes of Health to the Health Services and Mental Health Administration.

Mr. Johnson also agreed to renew a request to Congress to raise the status of HEW's principal health official, now Dr. Philip R. Lee, from assistant secretary to Under Secretary for Health and Science.

The new consumer and environmental health unit consists of:

—The Food and Drug Administration;

—The National Center for Air Pollution Control;

—The National Center for Radiological Health;

—The National Center for Urban and Industrial Health;

—Certain staff units of the Office of the Director, Bureau of Disease Prevention and Environmental Control.

Charles C. Johnson, Jr., a Negro and Assistant Commissioner for Health for Environmental Health in New York City, was named to head the new unit. An engineer, he had been on leave from the Public Health Service and his new post makes him the highest ranking Negro member in the history of PHS.

Dr. Herbert L. Ley, Jr., who had been director of the FDA's Bureau of Medicine since the fall of 1966, was appointed to succeed Dr. James L. Goddard who recently resigned as Commissioner of Food and Drugs. Dr. Ley, 44, had been recommended by Goddard and also had the support of a number of Senate and House members on committees concerned with FDA. A 1946 graduate of the Harvard Medical School, Dr. Ley had been on the faculty at his alma mater and the George Washington University School of Medicine earlier in his career. He also had served as chief of medical branches of the Army research office and the office of the Army Surgeon General.

The interdepartmental health policy council will oversee all federal activities in the health field, such as drafting of physicians for service

with the armed forces, Veterans Administration hospitals and Office of Economic Opportunity health projects.

Cohen said that there had been no way in the past for the HEW secretary to give guidance in such matters. He said there must be a reexamination of the drafting of physicians to provide care in the United States for civilian dependents of military personnel.

"This allocation of a portion of the critically scarce physician pool materially affects programs intended to make health care as widely available as possible, a national health goal that goes far beyond the mission of the Department of Defense," Cohen said.

As medicare went into its third year, Cohen announced the appointment of a 12-member advisory council to study the possible extension of the program to disabled persons under age 65. Congress last year turned down the Administration's request for such an extension but authorized creation of the council to study the matter.

In discussing medicare, Cohen said rising health care costs had made financing of the program a serious problem. He said new financing, presumably a tax increase, may be required if costs continue to rise.

"Physicians must act with restraint on fees or people will ask government to put on controls," he said. "I would not like to see that."

Dr. Henry H. Kessler, director of the Kessler Institute for Rehabilitation in Newark, N. J., was named chairman of the advisory council. Other members are:

Dr. Morris Brand, medical director of the Sidney Hillman Health Center; James Brindle, president of the Health Insurance Plan of Greater New York; James M. Gillen, director of personnel research of General Motors; Juanita Kreps, associate professor of economics at Duke University; Dr. Leonard W. Larson, past president of the American Medical Assn.; Daniel W. Pattengill, vice president of Aetna Life and Casualty Co., Bert Seidman, director of the AFL-CIO social security department; E. A. Vaughn, vice president of the Aluminum Co. of America; Anthony G. Weinlein, executive assistant to the president of the AFL-CIO Building Service Employees; E. B. Whitten, executive Director of the National Rehabilitation Assn., and Dr. Alonzo S. Yerby, professor at Harvard's School of Public Health.

* * *

The American Medical Association told Congress it supported most provisions of the Administration's health manpower bill as essential to increasing enrollment in the nation's medical schools.

The AMA position was outlined by Dr. William A. Sodeman of the AMA's Council on Medical Education in testimony before the House Public Health and Welfare Subcommittee. He noted that a recent joint statement of the AMA and the Association of American Medical Colleges that more funds from both government and private sources would be needed by medical schools if they were to expand enrollment.

"The bill (H. R. 15757) before the subcommittee provides a means of furnishing the Federal component of the necessary financial resources," Dr. Sodeman said.

In other testimony, the AMA supported the overall objectives of the Administration's occupational health bill. But the Association opposed a provision that would authorize establishment and enforcement of mandatory national standards for health and safety.

Dr. R. Lomax Wells, chairman of the AMA's Council on Occupational Health, told a Senate Labor Subcommittee that the objectives of the bill (S. 2864) could "best be accomplished through the research, education and training provisions and through grants to states to enable them to undertake and conduct more effective programs in both occupational health and safety."

Urging rejection of the mandatory standards provision, Dr. Wells said that this authority has been "properly vested in the states where the standards and the enforcement can be adapted to their particular geographical and industrial conditions."

* * *

The U. S. Supreme Court refused, by a 5-4 division, to lay down a constitutional rule against punishing chronic alcoholics for being drunk in public.

In an opinion by Justice Thurgood Marshall, four members of the Court said that neither the facts of the test case nor "the comparatively primitive state" of scientific knowledge on the subject justifies such a decision at present.

The vote of the four, plus Justice Byron R. White, who concurred separately, upheld the con-

viction of Leroy Powell, 67, who was fined $50 in a Travis County, Tex., court for being drunk in public.

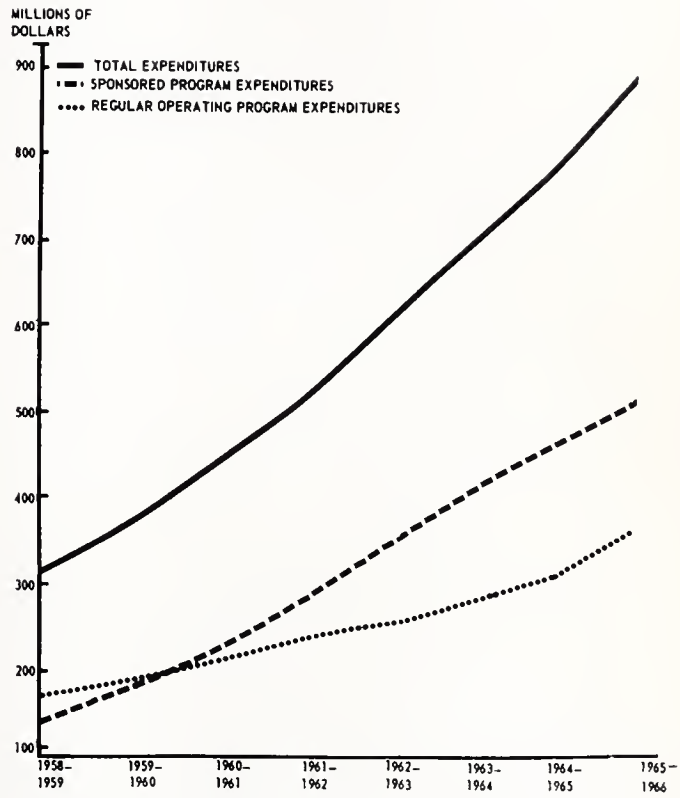
The argument for Powell was that alcoholism is a disease and the person suffering from it should be treated rather than punished.

Two AMA authorities on alcoholism expressed surprise and disappointment at the court's decision. Dr. Marvin Block of Buffalo, N. Y., a member and former chairman of the AMA's Committee on Alcoholism and Drug Abuse, and Dr. Dana L. Farnsworth of Harvard University, chairman of the AMA Council on Mental Health took issue with the court opinion that "we are unable to conclude . . . that chronic alcoholics in general . . . suffer from such an irresistible compulsion to drink and get drunk in public that they are utterly unable to control their performance. . ."

REGULAR OPERATING AND SPONSORED PROGRAM MEDICAL SCHOOL EXPENDITURES 1958-1959 to 1965-1966

In 1965-1966, medical schools reported the level of total expenditures at $882 million, an increase of $563 million, or a 177 per cent increase over 1958-1959. Figure 1 shows that the largest proportion of this increase is attributed to sponsored program expenditures which rose from $144 to $514 million.* During this same period, regular operating program expenditures increased from $175 to $368 million.

FIGURE 1



*All figures representing expenditures from funds provided for sponsored programs (including training and research) do not include expenditures allowed from funds provided for overhead.

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TABLE 1

PERCENT CHANGE IN ANNUAL EXPENDITURES OF FEDERAL AND NON-FEDERAL SPONSORED RESEARCH PROGRAMS 1958-1959 TO 1965-1966

Sponsored Research Programs*

	Total		Federal		Non-Federal	
	$	% Change	$	% Change	$	% Change
1958-1959	113.7	N.A.	74.1	N.A.	39.6	N.A.
1959-1960	136.0	+19.6	93.3	+25.9	42.7	+ 7.8
1960-1961	167.5	+23.2	118.9	+27.4	48.6	+13.8
1961-1962	206.2	+23.1	156.7	+31.8	49.6	+ 2.1
1962-1963	264.4	+28.2	206.7	+31.9	57.7	+16.3
1963-1964	311.8	+17.9	252.3	+22.1	59.5	+ 1.3
1964-1965	342.9	+10.0	280.6	+11.2	62.3	+ 4.7
1965-1966	375.1	+ 9.4	307.4	+ 9.6	67.7	+ 8.7
1958-1959 to 1965-1966		+229.9		+314.8		+71.0

*Includes only research funds.

For each of the years since 1958-1959, approximately three-fourths of the expenditures from funds for sponsored programs have been for research. During this time, expenditures from the federal share of research support have increased from $74 to $307 million. Even so, Table 1 shows that the rate of annual change in expenditures from federal funds has gone downward from 26 to 10 per cent per year. The greatest increase in the expenditures from federal funds was for each of the years between 1960-1961 and in 1963-1964 it reached 32 per cent. This trend is paralleled in the rate of increase in the total monies spent from funds provided for sponsored research programs which declined from 20 per cent in 1962-1963 to 9 per cent in 1965-1966.

Table 2 compares the level of expenditures from funds available for regular operations (including sponsored funds) for the 84 four-year schools for the years 1958-1959 and 1965-1966. Between these years the number of schools spending between $3 and $6 million from these sources increased from 15 to 44. In 1965-1966, 15 schools spent more than $6 million from funds available for regular operations. No schools were in this class seven years before. In 1958-1959, the expenditures from funds available for regular operations ranged from $0.6 million to $6.0 million and in 1965-1966 from $1.3 million to $10.9 million, a difference of 838 per cent.

TABLE 2

Comparison of Annual Expenditure of Regular Operating Programs of Four-Year Medical Schools 1958-1959 and 1965-1966

	Four-Year Medical Schools	
	1958-1959	1965-1966
Annual Expenditure Level	No.	No.
Less Than $1 Million	12	0
$1 to $2 Million	34	11
$2 to $3 Million	20	14
$3 to $4 Million	6	17
$4 to $6 Million	9	27
$6 to $8 Million	0	8
Over $8 Million	0	7
Total Schools	84	84
Minimum Expenditures (millions)	$0.6	$1.3
Maximum Expenditures (millions)	$6.0	$10.9

THINGS TO COME

The Eleventh Congress of the Pan-Pacific Surgical Association

The Pan-Pacific Surgical Association is holding its Eleventh Congress on October 14-22 in Honolulu, Hawaii. The scientific program will consist of some 350 speakers in all surgical specialties. Concurrent meetings will be held in Colon and Anorectal Surgey, General Surgery, Neurosurgery, Otolaryngology, Plastic Surgery, Thoracic-Cardiovascular Surgery and Urology. Included in the program will be meetings in Anesthesiology and Radiology. All scientific meetings will be held in the mornings, leaving afternoons free for sightseeing and social events for doctors and their families. For further information write: Pan-Pacific Surgical Association, Room 236, Alexander Young Building, Honolulu, Hawaii 96813.

OBITUARY

Dr. Charles T. Chamberlain

Dr. Charles T. Chamberlain of Fort Smith died on July 23 following a long illness at the age of 62. He had practiced internal medicine and cardiology since 1935 at the Holt-Krock Clinic in Fort Smith.

Dr. Chamberlain received his A. B. degree from the University of Virginia in 1927 and his M. D. degree from Tulane University in 1931. He interned at Newell and Newell Sanatorium in Chattanooga, Tennessee. He practiced at the Graduate Hospital of the University of Pennsylvania in Philadelphia. He had been an assistant professor of medicine at the University of Arkansas School of Medicine since 1948. He belonged to the American College of Physicians, the American Heart Association, the Southern Medical Association, the American Society of

Internal Medicine. He was a member of St. John's Episcopal Church; the Chamber of Commerce; the Exchange Club; Medical Advisory Board; Alpha Chapter of Pi Kappa Alpha; Raven Society and Beta Virginia Chapter of Phi Beta Kappa. He is survived by his wife, Mrs. Vera Brown Chamberlain; one son, John; his mother, Mrs. Ett Elise Chamberlain of Port Gibson, Mississippi; one sister, Mrs. David B. Taylor, Jr., of Port Gibson; and one nephew and one niece. A memorial fund has been established at Sparks Memorial Hospital for education and research in the Department of Cardiology.

Dr. Horace Ewing Ruff

Dr. Horace Ewing Ruff of Magnolia died July 3, 1968. He was born July 15, 1873, at Current View, Randolph County, Arkansas. After graduating from Washington University Medical School in St. Louis in 1894 he returned to practice medicine in Randolph County at Pitman. He later practiced at Pocahontas, Heber Springs, and Little Rock. He helped organize the first county medical society in Randolph County. Dr. Ruff served two terms in the Arkansas House of Representatives from 1905 to 1909 and one term in the Arkansas State Senate from 1915 to 1919. He was an active member and worker in the Democratic Party in Arkansas throughout his life and served as recently as 1960 on the Columbia County Democratic Central Committee. He served in the Army Medical Corps during World War I as a regimental surgeon with the Third Division. He was wounded during this time and was later awarded a citation by General Pershing and received the Purple Heart and Silver Star decorations. He was a charter member of the American Legion and held many offices on both state and local levels in the organization. He was a member of the Methodist Church and participated actively in all phases of church work. He retired to Magnolia. He is survived by his wife, Mrs. Lehman Ruff; a daughter, Mrs. William L. Thompson of Magnolia; two sons, Dr. H. E. Ruff, Jr., of Ruston, La., and Dr. John L. Ruff of Magnolia; five grandchildren, eight great-grandchildren, and three great-great-grandchildren.

Dr. Will Wilson Jackson

Dr. Will Wilson Jackson of Hot Springs died July 24, 1968. He was born August 2, 1889 in Clarinda, Iowa. He was a captain with the Medical Corps in World War I. He began his medical practice in 1909 in Oklahoma and moved to Hot Springs in 1920 to practice until his retirement in 1967. He practiced medicine for 59 years and was a Life Member of the Arkansas Medical Society. Survivors include his wife, Mrs. Helen Beal Jackson.

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: 125 Rhythm: —

P-R: 0.17 sec. QRS: .08 sec. Q-T: 0.35 sec.

SIGNIFICANT ABNORMALITIES:

Increased voltage of P waves, delayed intrinsicoid deflection right precordial leads with prominent S waves, low voltage. Generalized non-specific T abnormalities.

INTERPRETATION: Abnormal

Tracing is characteristic of cor pulmonale.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Sclerosing osteogenic sarcoma.

X-RAY FINDINGS: The shaft of the fibula is widened with bone destruction, perforation of the cortex and new bone being formed outside the bony cortex.

PERSONAL AND NEWS ITEMS

Two Doctors Join DeQueen Clinic Staff

Dr. Jim C. Citty from Idabel, Oklahoma, and Dr. James I. Balch from Batesville have joined the medical staff of DeQueen Clinic. They will be associated with Dr. Frank Daniel, Dr. Charles N. Jones, Dr. Eugene A. Joseph, and Dr. Wayne G. Pullen, all of DeQueen.

Dr. Wilson's Son Enters Medical School

Dale H. Wilson, son of Dr. and Mrs. Carl Wilson of Fort Smith, has been accepted by the University of Arkansas School of Medicine and will enter as a freshman this fall. He has an A. B. degree from Westminster College in Fulton, Missouri.

Dr. Thomas Has New Associate

Dr. Kenneth New joined the staff of the Dermott Clinic as an associate of Dr. H. W. Thomas of Dermott.

New Doctor for Lake Village

Dr. John P. Burge of Lake Village has returned from the Air Force to practice with his father, Dr. J. H. Burge of Lake Village. Other doctors with whom Dr. John Burge will be associated are Dr. James D. Harbison, Dr. Gaither C. Johnston, and Dr. Allen G. Talbot.

Dr. Ozment Speaks at Rotary Meeting

Dr. L. V. Ozment of Camden spoke before a meeting of the Camden Rotary Club on heart disease in July.

Dr. Berry Obtains New Associate

Dr. John P. Puckett, Jr., formerly of Florida, has joined Dr. Donald M. Berry of Jonesboro in the practice of Obstetrics and Gynecology.

Dr. Rasch Elected

Dr. James R. Rasch of Little Rock was elected a fellow of the American College of Physicians.

Dr. Ferrell Moves to Van Buren

Dr. Griffith H. Ferrell has moved to Van Buren to practice medicine at the Edds Clinic with Dr. Millard C. Edds and Dr. E. G. Hopkins, both of Van Buren. Dr. Ferrell formerly practiced at Ozark.

Doctor Searches for Spanish Treasure

Dr. David M. Yocum and his son, both of El Dorado, have been searching for Spanish gold and silver along the Mexican coast with eighteen other explorers. The search was conducted along the Alacran Reef.

Doctors Re-elected to AAGP

Dr. James D. Huskins of Siloam Springs, Dr. Bernard Capes of West Helena, Dr. A. J. Forestiere of Harrisburg, and Dr. Lowell O. Harris of Hope have been re-elected to active membership in the Arkansas Academy of General Practice.

Millard-Henry Clinic Adds Doctor

The Millard-Henry Clinic added Dr. Joe A. Gardner of Missouri to its staff. Dr. Gardner will specialize in obstetrics and gynecology.

Doctor's Car Stolen

Dr. John A. Vaughan of Malvern had his auto stolen in June while it was parked near the Hot Spring County Memorial Hospital. The car contained several personal items and the doctor's bag.

Dr. Williams Announces New Associate

Dr. T. E. Williams of Newport announces the association of Dr. Jerry M. Frankum, Jr., with the Newport Clinic and Hospital. Dr. Frankum is from Blytheville and will practice surgery at the clinic.

Dr. Caplinger New Associate

Dr. Kelsey Caplinger, III, of Fordyce is now in association with Dr. Allen G. Cazort, Dr. Purcell Smith, Jr., Dr. Bill F. Hefley, and Dr. Fred J. Kittler at the Arkansas Allergy Clinic in Little Rock.

Physicians Participate in Postgraduate Course

Dr. W. H. Lane, Jr., of Dover and Dr. Ben Hyatt of Perryville attended a continuing education course for physicians on the management of stroke patients in Hot Springs on July 18-19 at the Arkansas Rehabilitation Research and Training Center. Participants in the program included Dr. W. Payton Kolb and Dr. Winston K. Shorey, both of Little Rock, Dr. Robert N.

Muckleroy and Dr. Shirley McCluer of the Rehabilitation Center in Hot Springs, and Dr. Dennis Lucy of Little Rock.

Dr. Bell At Piggott

Dr. John O. Bell of Little Rock will assist at the Piggott Hospital while Dr. Jerry L. Muse and Dr. Hillard R. Duckworth, both of Piggott, take their vacations.

Dr. Springer is New President

Dr. Worthie R. Springer, Jr., of North Little Rock was installed as president of the Arkansas Medical, Dental, and Pharmaceutical Association at its annual convention at Hot Springs in June. He succeeded Dr. Frank Bryant of Pine Bluff. Dr. Robert Smith of Pine Bluff was elected president-elect, Dr. Robert Miller of Helena was elected first vice president, Dr. T. J. Collier of Hot Springs is the new executive secretary and Dr. M. A. Jackson of Little Rock is the new assistant secretary.

Harris Clinic Gains New Associate

Dr. M. H. Harris of Newport announced the association of Dr. Linda Maxwell as a member of the medical staff of the Harris Hospital and Clinic.

Dr. Harrell Selected

Dr. William B. Harrell of Texarkana was one of twenty-five Public Health Service Reserve Officers in the United States who were called to active duty this summer. They are to implement the Emergency Health Service Program in strategic cities over the United States for one day each month. Dr. Harrell signed a contract making available to Texarkana and the surrounding area a 50 bed emergency mobile hospital. Dr. R. H. Chappell of Texarkana will staff and operate the mobile disaster hospital.

Dr. Thompson Begins Practice

Dr. Robert M. Thompson has opened an office for the practice of psychiatry in the University Tower Building in Little Rock.

NEW MEMBERS

A new member of the Pulaski County Medical Society is DR. DALTON E. PACKMORE. Dr. Packmore was born in 1936 in Little Rock. He attended the Little Rock Junior College and the University of Arkansas in Fayeteville for his pre-medical education and the University of Arkansas School of Medicine for his medical education. He was graduated in 1961. He interned at the University of Arkansas Medical Center and served a residency at Baylor University Medical Center, in pathology. He also was an instructor in pathology for a year at Baylor. He began his private practice in Garland, Texas, in 1967. He recently moved to Little Rock to practice pathology at St. Vincent Infirmary.

Pulaski County Medical Society announces DR. CHARLES G. PEARCE as a new member. He was born in Heber Springs in 1918. He attended the Arkansas State Teachers College in Conway for his pre-medical education and attended the University of Arkansas School of Medicine for his medical education. He was graduated in 1944 and then interned at the University of Arkansas Medical Center. He served as a Captain in the Medical Corps from 1946 to 1948. He specialized in Psychiatry with a residency at the Veterans Administration Hospital in North Little Rock. He has also taught on the volunteer staff in Psychiatry at the University of Arkansas Medical Center. He is presently practicing psychiatry at the Veterans Administration Hospital in Little Rock.

DR. RICHARD G. BURNS is a new member of the Craighead-Poinsett County Medical Society. He was born in Bellevue, Nebraska, in 1934. He attended the University of Maryland and an extension campus in Munich, Germany.

He also attended the University of Tennessee in Knoxville, Tennessee for his pre-medical education. He was then admitted to the University of Tennessee College of Medicine and was graduated in 1960. He spent both his internship and his residency in internal medicine at the Baptist Memorial Hospital in Memphis, Tennessee. He also held a teaching appointment in the Department of Internal Medicine at the University of Tennessee School of Medicine. He practiced internal medicine for two years in Memphis, Tennessee. He is a member of the Tennessee Heart Association and the Memphis Academy of Internal Medicine. Specializing in Cardiology and Internal Medicine, he is presently in private practice at 505 East Matthews in Jonesboro, Arkansas.

DR. CHARLES H. WEBER is a new member of the Columbia County Medical Society. He was born in Houston, Texas, in 1938. He graduated from Baylor University in Waco, Texas, with a B. A. degree in Chemistry in 1960. He attended the University of Arkansas School of Medicine for his medical education and graduated in 1964. He interned at the University of Arkansas Medical Center and completed a residency in general surgery there. He spent two years in the United States Air Force. He is now located at 110 West North in Magnolia and is in general practice.

BOOK REVIEWS

ELECTROCARDIOGRAPHIC HANDBOOK—Third Edition, Author, M. Irene' Ferrer, M.D., illustrated, pp. 144, published by Hoeber Medical Division, Harper & Row, New York, 1968.

Acute Changes in Plasma Volume, Renin Activity, and Free Aldosterone Levels in Healthy Subjects Following Furosemide Administration

J. Rosenthal et al (Clinical Research Institute of Montreal, Montreal)

Canad J Physiol Pharmacol 46:85-91 (Jan) 1968

Experiments demonstrate quantitative changes in renin release and plasma free aldosterone levels following salt depletion. Plasma renin activity was assayed 10, 20, 60, and 120 minutes after intravenous injection of furosemide in healthy human subjects. Plasma free aldosterone levels and plasma volume were measured 60 and 120 minutes after injection. Plasma renin activity rose significantly after 10 minutes, the highest values coinciding with peaks in urinary volume and sodium excretion, and with lowest osmolality. The plasma aldosterone increase was significant at 120 minutes. Plasma volume measurements decreased significantly 60 minutes after injection, tending to return to control values at 120 minutes. The increase in renin precedes that in aldosterone following the marked decrease in plasma volume due to acute diuresis and sodium loss.

Suicide Among Patients in Mental Hospitals

M. J. Kahne (1075 Pleasant St, Belmount, Mass)

Psychiatry 31:32-43 (Feb) 1968

In the course of a broad inquiry into an epidemic of suicides among mental hospital patients, an opportunity arose to pierce the taboo which ordinarily inhibits formal intra-professional appraisal of one's colleagues, and to gather limited but illuminating information about 79 psychiatrists. This group comprised the entire psychiatric staff of the hospital concerned, and all of them were actively engaged in intensive psychotherapy of hospitalized patients. Although personality charactistics, opinions, and clinical practices of therapists did not distinguish therapists who had a suicide from those who did not, the results of this study suggest that under circumstances of hospital anomie, the following factors may provide important referents for understanding the differences in outcome: hospital case assignment policy, the therapist's position in the hospital structure, his opportunities for contact with his patients, and his capacity to relate to them as reflected in measures of social distance, and the attention he pays to each patient's milieu.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

CHRONIC BRONCHITIS AND EMPHYSEMA

A review of the literature on these two pulmonary conditions points to both their similarities and their differences. So serious is the effect of cigarette smoking on their development that the first step in control is prevention of cigarette smoking.

Chronic bronchitis may be defined on the basis of symptomology, while emphysema must be defined in morphologic terms.

Since differences of opinion on the respective roles of these conditions in the production of respiratory symptoms and in relation to prognosis have led to ambiguity in the use of the terms, it may be useful to mention some issues on which there is agreement.

Among the points of agreement are that chronic bronchitis is commonly associated with pulmonary emphysema; that airway obstruction, which may have its genesis partly in the bronchitic process and partly in the destructive changes of emphysema, is the principal incapacitating feature of both diseases; that derangement of ventilation-perfusion distribution may occur in patients who have little or no morphologic emphysema; and that the gastension derangement to which this maldistribution gives rise is usually the precursor of right ventricular failure, the most serious complication of both conditions.

One group of investigators who correlated pulmonary function during life with morphologic appearance after the patient's death found that the total lung capacity was a relatively poor indicator of the extent and severity of morphologic emphysema. The extent of the condition could be better measured by the departure of the residual volume from predicted numbers. CO transfer showed a satisfactory correlation with the extent of anatomic emphysema.

D. V. Bates, M.D., FRCP; *The New England Journal of Medicine*, March 14, 1968.

WEIGHING MORPHOLOGIC CHANGES

The attempt to correlate arterial-blood gases with morphologic changes is made difficult by the possibility that hypoventilation may coexist with chronic bronchitis, and, because of the resulting chronic hypercapnia and hypoxemia, may play a more important part in determining cor pulmonale than the morphologic chronic bronchitis itself.

It may be premature to say that either chronic bronchitis or emphysema is responsible for degrees of ventilation/perfusion abnormality of dyspnea. Possibly patients at either end of the spectrum can be distinguished from each other, that is, the nonbronchitic, purely panlobular emphysema of the familial type should be distinguishable from that of the man with a severe bronchitic history, normal total lung capacity, normal pulmonary vasculature on X-ray examination, and normal CO diffusing capacity. When the conditions coexist, however, as is often the case, the effects of the two lesions cannot be apportioned.

In considering the natural history of chronic bronchitis and emphysema, it is necessary to attempt to describe the complex changes that occur in the lung from the first day a person smokes a cigarette or goes to live in an atmosphere of heavy urban pollution, to possible death 40 years later from respiratory failure or cor pulmonale.

FIRST EFFECT OF SMOKING

The primary effect of cigarette smoking occurs at the level of the small bronchioles. Impairment of normal defense mechanisms against infection leads to slower convalescence from lower-respiratory infections than in the nonsmoker. These early effects will be aggravated if the person lives in an area of high industrial air pollution.

After years of cigarette smoking (fewer years for the patient living in the city than for the one living in a clean atmosphere), the effect

of the agents on the lung will have become measurable. Little sputum may be produced at first, the forced expiratory volume (FEV) may be nearly normal, the gas distribution will be impaired and the residual volume somewhat increased. The FEV and total airway resistance are relatively insensitive to considerable changes in small airways. However, changes in peripheral airways are indicated by the fact that the dynamic compliance of the lung has become frequency-dependent, although recoil is normal, and by evidence of ventilation/perfusion abnormality.

Continued exposure to cigarettes and other pollutants leads to the next stage, in which considerable hypertrophy of mucous glands occurs. Sputum production also increases. During this time bronchioles are disappearing, and the ventilation/perfusion ratio may become more unfavorable in some regions of the lung. At this stage the lung is abnormally susceptible to any physical agent, and the bronchial tree as a whole has become hyper-reactive. Its cleansing mechanism must be impaired, and its resistance to any infection may be lower than in a normal lung.

Next there is breakdown of lung tissue, which occurs earliest in cigarette smokers and city dwellers. This usually begins at the respiratory bronchiole, presumably in alveoli that have been exposed to inspired material. This centrilobular emphysema is always accompanied by changes in bronchioles.

The failure of cell nutrition may not be localized to the center of the lobule but may occur more generally throughout the lung. When this occurs, and it may occur as a result of alpha$_1$-antitrypsin deficiency, the result is panlobular emphysema.

EFFECT OF NORMAL AGING

Superimposed on these changes is the effect of normal aging of the lung whereby elastic recoil diminishes progressively, resulting in closure of small airways at a progressively higher lung volume and causing further maldistribution of ventilation.

In all types of emphysema there will be reduction in the numer of terminal bronchioles. By this time the severe limitation of ventilation is not reversible. Atrophic changes in the walls of major bronchi may contribute to this final stage of the condition by causing their collapse during expiration.

In the control of chronic bronchitis and emphysema the most important aspect is the prevention of cigarette smoking.

Although the rate of increased understanding of these conditions is not commensurate with the urgency of the problem, fortunately during the last 10 years there have been important advances at least in understanding the complexity of the problems involved.

Adrenocortical Responsiveness after Alternate-Day Corticosteroid Therapy

G. L. Ackerman and C. M. Nolan (Univ of Arkansas Medical Center, Little Rock)

New Eng J Med 278:405-408 (Feb 22) 1968

Plasma 17-hydroxycorticosteroid levels were measured after insulin-induced hypoglycemia in a group of ten adults receiving alternate-day steroid therapy. In these patients, who had either idiopathic nephrotic syndrome or lupus nephritis, prednisone was administered in a single dose at 8 AM every 48 hours. All the patients had received alternate-day therapy for at least two months in doses ranging from 25 to 120 mg; the mean dose was 75 mg. The findings in this group were compared with those of normal control subjects and with those of patients taking steroids each day in divided doses. There was moderate depression of the resting level of plasma 17-hydroxycorticosteroids in the patients taking prednisone on alternate days; however, the rise in plasma 17-hydroxycorticosteroids after hypoglycemia was equal to that of the control group and was significantly greater than that observed in patients who received daily steroid therapy. Less suppression of the pituitary-adrenal response to stress follows alternate-day steroid treatment than results when steroids are given each day.

October, 1968

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Vol. 65 No. 5

FORT SMITH, ARKANSAS

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■ **for fever blisters and canker sores of herpetic origin**

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No untoward side effects have been reported to date.

Literature on indications and dosage available on request.

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Transformation of Mammalian Cells by Animal Viruses

Lawrence A. Falk, Jr.*

Today, one of the great challenges of medical science is to determine the etiology of human cancers and proceed to the development of means for their control and prevention. Since the early experiments of Rous[20], which showed that cell-free filtrates of a chicken sarcoma could cause tumors when injected into animals, a number of viral-induced tumors in experimental animals have been extensively investigated. Since many viruses can induce tumors in lower animals, it must be thought that humans would be unusually unique if they escaped tumor induction by viruses. With this uncertain belief, that some human malignancies may have a viral etiology, concentrated efforts are being devoted in attempts to definitely establish a relationship between viruses and cancer in humans.

Neoplasias arise as a result of a change which has occurred in one cell or a group of cells. These cells may be said to be "transformed", i.e., genetically stable changes are passed to daughter cells. After a normal cell has been transformed, new properties of the progeny are acquired: 1) increased growth rate, 2) changes in cellular morphology, 3) changes in metabolic rates, 4) loss of contact inhibition, and 5) the loss and/or acquisition of unique cellular antigens. Since these characteristics are under genetic control, the process by which a cell becomes transformed implies an alteration of the genetic information of the cell in some manner.

The detection of transformation in bacterial systems is relatively simple compared with the demonstration of this phenomenon or process in mammalian cells. Bacteria which have become resistant to a particular antibiotic are able to grow in the presence of this antibiotic, leading to the selection of a new cell type. The ease in cultivation, the ease of demonstrating specific genotypic changes, and a relative simple genome allow the process of transformation to be measured directly in bacterial systems.

In mammalian cell systems, there is no question that the cells of a tumor have been transformed, for when they are cultured *in vitro* they have the potential for unlimited growth, their morphology is generally atypical and what is more important, when transplanted into a genetically compatible host they give rise to a tumor. Determining *in vitro* transformation of normal cells which has been induced by animal viruses poses different problems. These are associated mainly with the infinite complexity of the genome of mammalian cells, since the genetic material is distributed among several chromosomes, as opposed to bacteria which have but a single chromosome. Futhermore, the expression of genetic changes is much more subtle, since all of the cells will not be transformed spontaneously, and the latent period of transformation may vary from days to weeks, dependent upon the agents and cell cultures used. However, the opportunity to investigate the process of transformation of mammalian cells *in vitro* does offer some promise for elucidation of the *in vivo* transformation mechanism.

The investigations of the relationships between viruses and neoplasia have assumed two broad avenues of approach: 1) Comparison of biophysical properties of tumorigenic and non-tumorigenic viruses and attempts to determine if there is any correlation between these properties and tumorigenesis. 2) The development of methods to determine, either directly or indirectly, the presence of viral constituents in transformed cells, even though infectious virus particles cannot be demonstrated.

Tumor-inducing viruses can be divided into two groups on the basis of their content of nucleic acids, i.e., deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) tumor viruses. Table I lists some of these viruses. All of these agents,

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when injected into suitable hosts, give rise to tumors and many are capable of transforming normal cells in culture.

Of the tumor viruses, the human adenoviruses appear to be the most promising in establishing a relationship between viruses and human malignancies. Adenoviruses are common infectious agents of man and more importantly, they are the only human viruses which have been shown to be tumorigenic in lower animals.

TABLE I

REPRESENTATIVE RNA AND DNA TUMOR VIRUSES

VIRUS	HOST OF ORIGIN	TUMORS IN NATURAL HOST	IN VIVO TUMOR	IN VITRO CELL TRANSFORMATION
RNA VIRUSES				
Rous Sarcoma	Chicken	Yes	Chicken, duck, turkey, mouse, hamster, monkey, guinea pig	Chicken, duck, rat, monkey, human
Murine Leukemia	Mouse	Yes	Mouse, rat, hamster	
Murine mammary tumor	Mouse	Yes	Mouse	
DNA VIRUSES				
Polyoma	Mouse	No	Mouse, hamster, rat, guinea pig, rabbit, ferret	Mouse, hamster, rat
SV40	Monkey	No	Hamster	Hamster, mouse, monkey, human
Adenovirus	Man	No	Hamster, rat, mouse	Hamster, human (?)

In 1953, Rowe and his associates at the National Institutes of Health isolated the first human adenoviruses. It was observed that a particular cytopathic effect (CPE) developed in certain primary tissue cultures of cultured human adenoid tissues[10, 21]. Viruses were demonstrated when cell-free filtrates, transferred from these cultures to normal cell cultures, induced the same type of changes in the latter cultures. This virus was called adeno - pharyngeal - conjunctival agent (APC). One year later, Hilleman and Werner[8], while in the process of studying respiratory illnesses in army recruits at Ft. Leonard Wood, Missouri, isolated a virus, RI-67, which was later shown to be serologically related to the APC agent. In 1956, the term "adenoviruses" was given to this group of newly recognized respiratory tract viruses[1]. Presently there have been 31 distinct serotypes of human adenoviruses isolated, some of which have originated from such distant places as Saudi Arabia and the Netherlands. Related adenoviruses have been isolated from lower animals and comprise the simian, bovine, canine, murine and avian groups.

Human adenoviruses contain a core of double stranded DNA, surrounded by a protein coat, giving the virus particles a diameter of 60-80 mu as determined by electron microscopy. All human types possess a group as well as a type specific antigen; their infectivity is resistant to ether; and they produce characteristic intranuclear, basophilic, inclusion bodies within infected tissue culture cells[5, 17]. Typical adenovirus infections in man include acute respiratory diseases, pharyngitis or pharyngoconjunctival fever, follicular conjunctivitis, keratoconjunctivitis, pneumonitis and atypical pneumonia. Serotypes 1, 2 and 5 are associated mainly with infections in infancy and early childhood, 3 and 7 with epidemics of respiratory diseases in the general population and types 4 and 7 are frequently found among army recruits.

Trentin and his associates[24] in 1962 observed that when adenovirus type 12 (Ad 12) was injected into newborn hamsters, tumors developed several months later at the site of inoculation. These tumors were ultimately fatal. The same year, Ad 18 was shown to be oncogenic in newborn hamsters[11]. Later Ad 31 was shown

to be as oncogenic in newborn hamsters as types 12 and 18[18].

On the basis of their tumorigenic properties, the 31 recognized serotypes of human adenoviruses have been placed in three main groups: A, B, and C[15]. Table II lists some of the properties of these groups. After inoculation into newborn hamsters, the latent period for tumor induction and the percentage of hamsters developing tumors have been used as criteria for grading the degree of oncogenicity. Types 12, 18 and 31, the highly oncogenic serotypes of Group A, induce tumors in a high percentage of experimental animals 1 to 2 months after inoculation. Types 3, 7, 14, 16 and 21, all in Group B, cause tumors in a small proportion of hamsters 4 to 18 months after injection[2, 3, 6, 14]. The members of Group C have no capacity for tumor production.

TABLE II
ONCOGENIC CLASSIFICATION OF ADENOVIRUSES

GROUP	TYPE	ONCOGENICITY	DNA COMPOSITION G + C CONTENT*
A	12	High	Low: 47-49%
	18	"	" "
	31	"	" "
B	3	Moderate	Intermediate: 50-53%
	7	"	" "
	14	"	" "
	16	"	" "
	21	"	" "
C	11, 4, 1, 2, 5, 6, 8-10, 13, 15, 17, 19, 22-24, 26, 27, 29, 30, 20, 25 & 28	Negative	High: 56-60%

The comparative biophysical studies which have been undertaken with the adenoviruses have been mainly concerned with defining the properties of the viral genome. Since it is almost unquestionable that the tumorigenic properties are inherent in the viral genome, which interacts with or influences the control mechanism of the cell, comparison of the properties of tumorigenic and nontumorigenic viral DNA may prove valuable.

Analyses of purine and pyrimidine base composition of the DNAs of adenoviruses have revealed striking differences in the guanine (purine) + cytosine (pyrimidine) (G + C) content[19]. (In native form the DNA molecule consists of a helix composed of two separate strands coiled around one another and connected by hydrogen bonds between opposite bases. Guanine on one strand always hydrogen bonds with cytosine on the other strand and the other two base pairs, adenine and thymine, hydrogen bond with one another in the same manner.) The highly oncogenic types have a low G + C content, 47 to 49 percent; the moderate oncogenic types possess an intermediate G + C content, 50 to 53 percent, and finally the nononcogenic types demonstrate a high G + C content, 56 to 60 percent (Table II).

The physical properties of the DNAs of the tumorigenic adenoviruses have been found to be similar to the DNAs of several other tumorigenic DNA viruses, namely polyoma and Shope papilloma. Using the parameters of buoyant density, temperature of denaturation as well as G + C composition, it was found that these properties were quite similar for the four tumorigenic viruses (Table III). From such results, several interesting possibilities have been proposed concerning the tumorigenicity of adenoviruses: 1) Since the tumorigenic adenoviruses have a lower G + C content than the nontumorigenic types, it is possible the tumorigenic types originated from nontumorigenic types by deletion of a portion of the viral genome rich in guanine and cytosine. 2) In view of the fact that the four tumorigenic viruses have similar physical properties, tumorigenic DNA viruses may have originated by a common evolutionary process. 3) Finally, since the G+C content of DNA from mammalian cells is 42 to 44 percent, it is not untenable that the DNA of the highly oncogenic viruses has a region homologous with a specific region of host cell DNA. Were the viral DNA to replace or combine with this area of host cell DNA, the function controlled by this region, whose role may involve control of cell division, may be supressed.

Additional studies have been directed toward determining whether the DNAs of the highly and the weakly oncogenic adenoviruses are in anyway homologus[2, 16]. The basis for DNA-DNA homology experiments rests upon the fact that if a DNA molecule is denatured (heated for 10 min, 100°C, which causes the duplex helix to separate into two strands) and added to denatured, heterologous, radioactively labeled DNA, hybrid

* Percent of Guanine and Cytosine.

TABLE III
PHYSICAL PROPERTIES OF TUMORIGENIC AND NONTUMORIGENIC DNA

VIRUS	BUOYANT DENSITY	TEMPERATURE OF DENATURATION (°C)	GUANINE-CYTOSINE (%)
Ad 2*	1.716	92.5	56
Ad 4*	1.718	92.5	57
Ad 12†	1.708	89.0	48
Ad 18†	1.709	89.0	49
Polyoma Virus†	1.709	89.0	48
Shope papilloma† Virus	1.711	89.5	49

*Nontumorigenic
†Tumorigenic

duplexes form if the two different DNAs share common nucleotide sequences. The greater the homology of the nucleotide sequence of the two DNAs will be reflected in a proportional decrease in free labeled strands, due to the formation of hybrids. DNAs with a high percentage of homology suggest the molecules have long lengths of similar or very similar nucleotide sequences.

In Table IV are presented the results of DNA-DNA hybridization experiments in which highly and weakly oncogenic DNAs were used. As shown in the first group of hybrid pairs the homology of the DNAs of highly oncogenic types 12 and 18 is quite high, 79 to 100 percent. Such data suggest that Ad 12 and 18 have perhaps 80 percent homologous nucleotide sequences in common. However, as shown in the second part of Table IV, the homology between the highly oncogenic types and the weakly oncogenic types is quite low, 14 to 19 percent. And finally, the weakly oncogenic adenoviruses have a high percentage of DNA-DNA homology, again suggesting the major portion of the genomes of these types share a common nucleotide sequence.

The low percentage (14 to 19) of nucleotide sequence homology found between the DNAs of Ad 7 and 14 and those of Ad 12 and 18 suggest that the weakly oncogenic viruses and the highly oncogenic types 12 and 18 may differ by 80 to 90 percent of their nucleotide sequence. On the other hand, the slight degree of homology strongly suggests that tumor production could be due to a specific region of the viral genome held in common by these two oncogenic groups.

From these comparative studies on the biophysical properties of the oncogenic viruses, it is apparent they have molecular properties which distinguish them from the nononcogenic types.

TABLE IV
DNA-DNA HOMOLOGY BETWEEN HIGHLY AND WEAKLY ONCOGENIC ADENOVIRUSES

	DNA-DNA HOMOLOGY (%)
GROUP ONE:	
HYBRID PAIRS	
Ad 12 x Ad 12	100
Ad 12 x Ad 18	79
Ad 18 x Ad 18	100
GROUP TWO:	
HYBRID PAIRS:	
Ad 12 x Ad 7	15
Ad 12 x Ad 14	14
Ad 18 x Ad 7	16
Ad 18 x Ad 14	19
GROUP THREE:	
HYBRID PAIRS:	
Ad 3 x Ad 11	79
Ad 3 x Ad 14	70
Ad 7 x Ad 11	80
Ad 7 x Ad 14	81

However, it is not yet possible to conclude that these properties are responsible for or associated with the oncogenicity of these types, although they are suggestive.

The tumors induced by Ad 12 are transplantable, undifferentiated, small cell tumors of remarkable uniformity, regardless of the site of inoculation[24]. Moreover, when cells are cultured from these tumors for an extended period of time, they maintain the morphology identical to cells of the primary tumor. In addition, hamster kidney cells which have been transformed *in vitro* by Ad 12 take on the characteristic morphology of the tumor cells. This is in sharp contrast to polyoma and SV40 viruses, both of which induce tumors of varying histological types. This suggests the morphology of the adeno-induced tumors and the cells transformed by adenoviruses must be influenced or dictated by the viral genome. To test this hypothesis, BHK 21 cells (baby hamster kidney 21, a spontaneously transformed cell line, which induces tumors when transplanted into newborn hamsters) were transformed by Ad 12 and transplanted into newborn hamsters. The tumors which developed were histologically similar to those arising by injection of Ad 12 alone, but different from the tumors

induced by injection of non-Ad 12 transformed BHK 21 cells[22].

In vitro cultured human embryonic lung cells have recently been reported to have been transformed by Ad 12[23]. Whether these transformed cells are neoplastic cannot be ascertained because of the impracticability of transplanting human cells into histocompatible hosts. However, the changes observed which favor transformation were: 1) a decrease in the doubling time of the cell population, 2) morphological changes in the cells, 3) changes in the growth characteristics, 4) acquisition of resistance to reinfection by Ad 12, but not Ad 4, 5) appearance of new cellular antigen, and 6) reduction and apparent cessation and release of infectious virus.

A factor which further complicates tumor research is the fact that adenovirus tumors in experimental animals are completely free of infectious virus. The absence of infectious virus in adeno tumors has prompted investigators to look for direct or indirect evidence for the continued presence of some viral constituents or associated material in these tumors.

Within individual cells of adeno tumors, viral antigens are detectable. These antigens have been demonstrated by complement fixation and fluorescent antibody techniques. Furthermore, these antigens are specific for each of the eight oncogenic adeno types[4, 9, 12, 13]. In addition, the sera from hamsters bearing adeno tumors have been shown to contain antibodies not only to antigens in the tumor but also to a very similar nuclear T antigen produced by adenoviruses in infected tissue culture cells. The T antigens appear in infected tissue culture cells several hours before the assembly of infectious particles. These T antigens cannot be demonstrated with type specific anti-adenovirus sera, but only with sera from tumor bearing hamsters. The tumor and T antigens formed by the highly oncogenic types 12, 18 and 31 share a common antigenic component. Thus, the complement fixing T antigens formed by these types in infected cell cultures are specific and cross react only slightly with sera from hamsters bearing tumors induced by the weakly oncogenic types. Likewise, the weakly oncogenic types share common tumor and T antigens. Both the T antigens and tumor antigens are soluble, that is, they do not sediment in the ultracentrifuge with the virus particles.

In addition to the presence of unique, virus-specific antigens in tumors and infected cell cultures, a virus-specific RNA has also been demonstrated. Since RNA forms on a DNA template, RNA and DNA in relatively pure forms can hybridize with one another in a manner similar to DNA-DNA hybridization. RNA extracted from Ad 12 transformed cells hybridized with homologous Ad 12 DNA 100 percent and with heterologous Ad 18 DNA 34 percent. However, the hybridization of RNA from these Ad 12 transformed cells with DNAs from the weakly oncogenic types was less than 10 percent. When virus-specific Ad 31 RNA was isolated from tumor cells, it hybridized 62 percent with the DNAs of Ad 12 and 18 and less than 10 percent with DNAs of the weakly oncogenic types[2]. RNA from tumor cells induced by the weakly oncogenic types (Ad 3, 7, 11, 14, 16 and 21) hybridized with DNAs from the weakly oncogenic types to a similar degree, but less than 10 percent with DNAs from the highly oncogenic types[3].

These data suggest that the virus exists within these transformed and tumor cells in a masked state. Also there is presumptive evidence that the viral genome is present within these cells since the incorporation of Actinomycin D (specific inhibition of DNA dependent RNA synthesis) into the growth medium of the adeno transformed cells, inhibited not only the synthesis of cellular RNA but also viral specific RNA[2]. Whether the viral genome is free within the cell or associated with the genome of the cell has yet to be determined.

The finding of viral specific antigens and RNA within tumors and transformed cells may prove to be a worthy approach to the investigation of human malignancies. Numerous attempts have been made in the past to isolate virus particles from human cancers with no measure of success. It does not seem improbable that some human tumors could be induced by viruses which continue in the cell in a masked form.

Fuginaga and Green[3] propose that RNA can be extracted from fresh human malignant tissue and tested for its reactivity with purified adenovirus DNAs. This method may also be extended to DNAs of other viruses, particularly those DNA viruses which exist in a masked or latent state in man, namely herpes simplex, herpes zoster and cytomegalovirus.

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Resistance Changes in Lipid Bilayers: Immunological Applications

Per Barfort (Electronics Research Lab, Univ of California, Berkeley), E. R. Arquilla, and P. O. Vogelhut

Science 160:1119-1121 (June 7) 1968

The electrical resistance of bimolecular lipid membrane of 0.1 molar NaCl decreases significantly if antibody and complement are present on one side of the membrane and the homologous antigen is added to the other side. The reaction occurs within minutes and requires less than 0.1μl of antiserum.

Knee Surgery in Rheumatoid Arthritis

Leonard Marmor, M. D.*

The knee joint is commonly involved in rheumatoid arthritis. A chronic, painful synovitis develops, which will gradually lead to destruction of the knee joint. Severe deformities may develop which will prevent the patient from walking (Fig. 1).

The basic pathologic process is the synovitis with secondary destruction of the articular cartilage. The aggressive synovium grows over the medial femoral condyle destroying the articular surface (Fig. 2). The intercondylar notch is also full of active synovium which invades all the surrounding structures.

Injections of local steroids or medical therapy may control the disease in the knee joint but if it does not prevent the synovitis and if injections are required every few weeks, surgery should be considered. Early surgery can be of great value in the knee joint to prevent its destruction.

The x-ray does not accurately reveal the actual destruction, as it is usually seen to be much further advanced at the time of surgery. The x-rays should be taken with the patient standing to allow for accurate determination of the joint space. If the joint space appears narrow on x-ray, then articular destruction is progressing.

Volkmann in 1877 described a synovectomy of the knee joint and Swett in 1923 introduced the operation to the United States. Heyman in 1928 reported that synovectomy was of value to relieve pain and restore function of the knee. Allison and Coonse in 1929 analyzed 50 cases of chronic infectious arthritis and found 90 percent of the patients relieved of their pain. Bernstein in 1933 reported good results in 22 of 25 patients with pain, swelling, and loss of knee motion. Pardee in 1948 reported excellent results with synovectomy in 85 percent of his patients. Car-

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Figure 1:
Rheumatoid arthritis can produce severe destruction of the knee joints by erosion of the subchondral bone and pannus invasion. This 38-year-old woman had severe pain in her knees and severe destruction of the joints on x-ray.

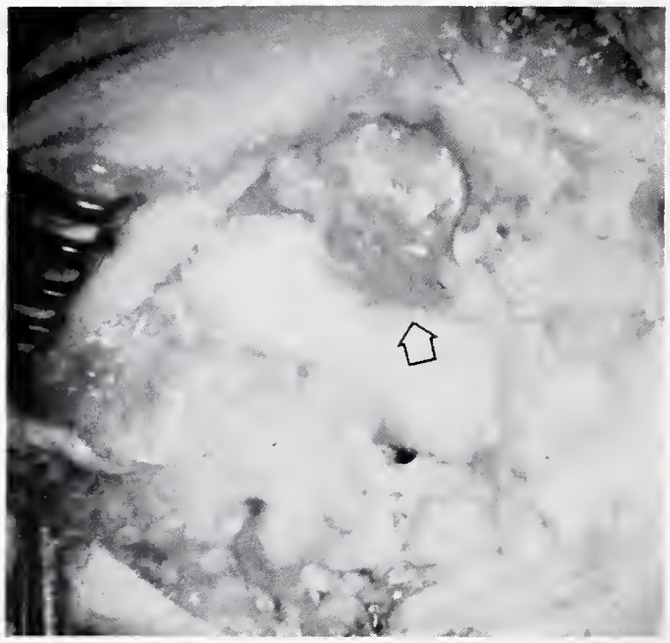

Figure 2:
Arthrotomy of the knee revealing the hypertrophied synovium growing over the superior aspect of the femoral condyle as pannus (arrow).

ruthers of Arkansas in 1955 reported on 66 synovectomies of the knee and believed that synovectomy is of definite value. London in 1955 reported the purpose of synovectomy was to preserve useful function and to relieve pain and swelling.

The problem experienced by most of the surgeons has been the difficulty in obtaining motion following surgery. Manipulation of the joint under anesthesia has frequently been necessary to obtain motion. Surgery has been feared because of the possibility of ankylosis of the knee following synovectomy. In order to overcome this complication the operation has been altered by leaving the synovium in the suprapatellar pouch. Since it is known that if the suprapatellar pouch is injured in a normal knee due to a femoral supracondylar fracture, motion will be lost, it follows that removal of the pouch in rheumatoid arthritis also leads to loss of motion. The suprapatellar pouch is left in place to allow the quadriceps tendon to slide easily without sticking down. The synovium is removed from the superior aspect of the femoral cartilage for about 2 cm. proximal towards the pouch leaving a synovial lined bursa beneath the quadriceps.

The indications for surgery are persistent pain and swelling of the knee which is not responding to medical therapy or appearance on the x-ray of loss of joint space or destruction of the bony margins. A definite contraindication to surgery is a poorly motivated patient. The selection of the patient for surgery is very important. The patient must understand what is going to be done and he must be willing to exercise postoperatively. The patient may be taught the exercises before surgery when they are more easily learned.

OPERATION

The operation is performed through a medial and lateral parapatellar incision for adequate exposure. The medial incision is made about 1 cm. medial to the patellar and the medial expansion is opened. The synovium is carefully removed from the edge of the articular cartilage

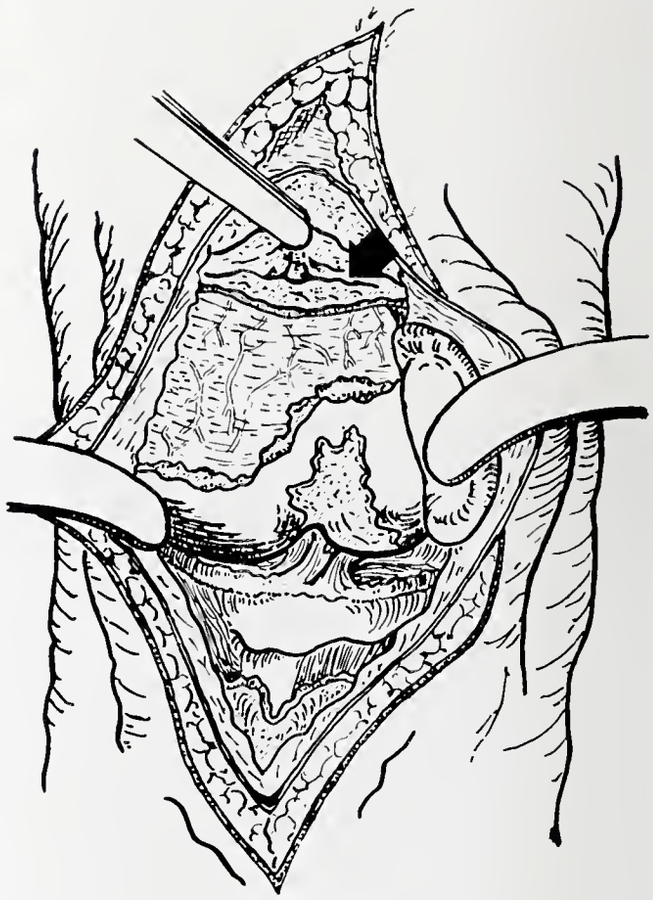

Figure 3:
The synovium is carefully removed from the knee joint leaving the suprapatellar pouch (arrow). Articular erosion has been produced by the pannus growing over the articular surface.

and bone, starting at the femoral condyle, for 1 to 2 cm. into the suprapatellar pouch (Fig. 3). The synovium is removed all the way around the medial condyle and from the underside of the expansion as well as the patella. The knee is flexed and the collateral ligament protected. This allows the posterior aspect of the medial wall of the condyle to be cleaned of synovium. The medial meniscus is also removed if present and the tibial plateau cleaned free of synovial tissue. Then the intercondylar notch is care-

fully cleaned of synovium with the cruciate ligaments left. The infrapatellar fat pad is also excised to remove the remaining synovium. In a similar manner through a lateral incision the lateral joint compartment is cleaned of synovium. Any bony osteophytes are removed at this time. The quadriceps expansions are repaired with 0 chromic interrupted sutures to allow early motion without breaking. The skin is also closed with 00 nylon sutures to prevent breaking of the

Figure 4:

This patient is a 72-year-old woman who had severe pain and swelling of her right knee due to rheumatoid arthritis. One year ago a synovectomy was performed and patient has been free of pain since her operation and she has retained an excellent range of knee motion.

suture line. A layer of stockinette is applied loosely over the dressing and then a layer of cotton batting followed by several layers of

Figure 5:

This patient was unable to walk without crutches because of pain and weakness of her right knee. She has no pain 1½ years after a synovectomy of her right knee and can walk without crutches.

stockinette for compression. The tourniquet is then released.

The postoperative care is most important and the same day the patient should be encouraged to bend the knee in the dressing and start quadriceps exercises. By the third day a fair amount of motion should be present. The bulky dressing is removed and further motion encouraged. The patient may sit on the side of the bed and let the knee bend over the edge. On the fifth day the patient may stand on the leg and begin to

Figure 6:
Patients with severe valgus or varus knees with flexion contractures may be corrected by tibial osteotomy. (A) 42-year-old woman with severe deformities of both knees; (B) Patient following bilateral tibial osteotomies to correct her deformities. An excellent range of knee motion has been retained.

walk. Sutures should be left in place three to four weeks until the wound is well healed.

RESULTS

One hundred and thirty knees were operated upon for rheumatoid arthritis and synovectomy performed. The patients ranged from 11 to 82 years of age. The majority of the patients were in the fourth and fifth decade. Manipulation of the knee was not necessary in any case and in most cases an excellent range or full motion was obtained. Pain was dramatically relieved by excision of the synovium. Patients with 10 to 15 degree loss of extension regained full extension

Figure 7:
In some patients in whom there has been destruction of the tibial plateau, a metallic prosthetic replacement is of value. (A) The metallic prosthesis is inserted into the tibial articular surface; (B) X-ray revealing the prosthesis in place.

following surgery. Follow-up ranged from 6 months to 4½ years. Two patients have had a recurrence of symptoms to date.

COMPLICATIONS

There were no deaths in this series or serious morbidity. Two patients had pain postoperatively and both were over 70 years of age. One of the patients was a poor choice as a patient and had an extremely low tolerance for pain. Three patients had some serious drainage from the joint due to rupture of several sutures but the wound healed within 4 weeks. There were no infections in this series. Four patients lost some range of flexion of the knee joint.

OSTEOTOMY

In these patients with marked flexion deformity or a valgus or varus deformity without an active synovitis, are best treated by an osteotomy of the tibia and fibula. A wedge is removed from the tibia to correct the deformity and a long leg cast applied. The patient is allowed to bear weight in the cast after 6 weeks.

PROSTHESES

If the tibial plateau is badly destroyed by the arthritis process, a synovectomy or osteotomy alone will not suffice. In these cases replacement of the plateau by a metallic McIntosh prosthesis has corrected the deformity. One or both plateaus may be replaced by metallic prostheses.

SUMMARY

Surgery of the rheumatoid knee has given excellent results in the painful swollen knee. Early synovectomy is of value to prevent further destruction and to relieve the patient's pain.

Channels of Aqueous Outflow and Related Blood Vessels

V. L. Jocson and M. L. Sears (Yale Univ School of Medicine, New Haven, Conn)
Arch Ophthal 80:104-114 (July) 1968

Colored room-temperature vulcanizing liquid silicone compound was used to delineate blood vessels and the aqueous vessels and their interconnections in the anterior segment of the rhesus monkey eye. Blood vessels were injected via the anterior and posterior ciliary arteries, and the aqueous vessels via the anterior chamber. Schlemm's canal, and the aqueous veins. Following injection, the globes were cleared and the topographical relationships and connections between the blood vessels and the aqueous outflow channels were examined under magnification. Schlemm's canal was found to be drained by large and fine intrascleral vessels which emptied into the anterior ciliary veins. No arterial communications with the canal were seen. The intrascleral aqueous outflow channels and the anterior veins had no connection with the uveal vasculature. In the episclera, however, many direct arteriovenous shunts were demonstrated.

Pigeon Breeders' Disease

J. N. Fink et al (VA Hosp, Wood, Wis)
Ann Intern Med 68:1205-1219 (June) 1968

The clinical and laboratory features of 12 patients with pigeon breeders' disease were studied during symptomatic and asymptomatic phases. The results indicated that this hypersensitivity pneumonitis may occur as an acute, subacute, or chronic form differing in type and intensity of signs, symptoms, and response to therapy. Pulmonary function tests in most symptomatic breeders revealed restriction, obstruction, or a diffusion defect. More than 50% of the breeders had chest x-ray findings suggestive of a diffuse interstitial process with secondary alveolar involvement. Lung biopsy showed a granulomatous interstitial pneumonitis and, in addition, in the one case of the chronic form, an obstructive bronchiolitis. An Arthus-type of skin reactivity to challenge with pigeon antigens was found in all patients. Sera from all 12 breeders contained precipitating antibody against various pigeon antigens. The preferential therapy for these patients is avoidance of contact with pigeons.

Selection of Patients for Orthopedic Surgery in Rheumatoid Arthritis

Leonard Marmor, M. D.*

Rheumatoid arthritis was first described in early Egyptian writings around 1500 B.C. Although it has been known to man for this long, we still do not know its exact cause or the proper drug to arrest the disease process.

Medical therapy consists of a number of drugs which have serious side effects. The first drug used is aspirin, but if it fails to control symptoms, antimalarial drugs, Indocin, Butazolidin, cortisone, or gold may be added as well. Complications with medical therapy can be severe; a number of deaths have been attributed to cortisone and gold treatment. The severe side effects of cortisone are well known.

Medical therapy does not prevent the progression of the disease with destruction of the joints. Adequate medical therapy, however, can do a great deal to prevent the pain and suffering from rheumatoid arthritis and certainly should be instituted before surgery is contemplated. Cortisone therapy should be restricted to use as a last resort and certainly not instituted if only several joints are painful or swollen. It is also important to have a proper diagnosis established in every case prior to surgical consideration.

The medical profession has been slow to accept the role of surgery in the treatment of rheumatoid arthritis. There have been unjust criticisms of surgical therapy but also some well founded fears. If the surgeon is not skilled in this type of surgery or selects the wrong procedure for his patient, the results can be bad and lead to further deformities or a so-called recurrence. Activity of the disease or an active "hot" joint is not a contraindication to surgery nor is elevation of the sedimentation rate a reason for postponing surgery. Surgery will not produce an exacerbation of the disease and patients withstand surgical procedures very well. Cortisone therapy also is not a contraindication and incisions will heal despite the paper thin skin. If patients have been on cortisone within the year prior to surgery, preparatory doses of steroids are necessary to prevent any problems during surgery. Our usual preparation consists of 100 mg of Solucortef intramuscularly the night before the operation followed by 100 mg intravenously during the surgery. The night of the operation another 100 mg is given intramuscularly for a 24 hour total of 300 mg. The first postoperative day the patient resumes his oral dose of cortisone and an additional 75 mg of Solucortef are given three times a day intramuscularly. The second postoperative day 50 mg are given three times a day and on the third day 25 mg three times a day, which concludes the additional steroid therapy. This preparation has worked very well in several hundred cases with no complications.

Figure 1:
This patient has marked swelling of the wrist and hand due to rheumatoid arthritis. The synovium has severely involved the wrist and extensor tendons. Synovium can be seen protruding through the third metacarpal-phalangeal joint.

The pathology of rheumatoid arthritis is important to understand in order to realize the rationale of surgical therapy. The synovial layer becomes greatly thickened by the rheumatoid process and it is this thickening which produces

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the (Fig. 1) swelling of the involved joints. The synovial tissue distends the soft tissue structures about the joint, stretching the capsule, collateral ligaments and other adjacent structures. This stretching of the supporting tissues leads to subluxation and dislocation of the joints. The synovium can be very aggressive and grow over the articular surface as pannus destroying the hyaline cartilage. It may also invade the subchondral bone, eroding the bone and destroying the (Fig. 2) support of the joint cartilage. This destruction can also be visualized in the x-ray as erosions and punched-out lesions of the bone (Fig. 3).

If the synovium is removed from a joint the inflammatory process stops, as the synovium appears to be the key target in this disease. Key and Wolcott have demonstrated in animals that if you remove the synovium from a joint a new membrane forms in 3 to 6 weeks. Biopsy in humans from rheumatoid joints many years after synovectomy does not reveal evidence of rheumatoid disease. Therefore surgery can interrupt the progression of the disease in a rheumatoid joint.

The indications for surgery at the present state of knowledge are persistent pain and swelling of a joint, x-ray evidence of destruction of the joint, and presence or possibility of a deformity that would interfere with function.

The selection of the patient for surgery is very important as the patient's attitude plays a great role in the result to be obtained by surgery. The patient must be motivated to help himself or the surgery will not be as successful as desired. If the patient does not want an operation or is seen only because his doctor insists, surgery should be deferred. The patient should be advised of the possibilities available from surgery and advised to attend a physiotherapy clinic for an exercise program. This will allow him to meet and see other patients who have had surgery. Generally it is not too long before he will be insisting on surgery and he will work hard postoperatively to achieve a good result. The therapist can start the patient before surgery on exercises to strengthen all the muscles of the arms and legs as well as the ones necessary after the surgery. Crutch training is much easier before the operation and greatly aids postoperative management. The postoperative therapy is very important to the successful results obtained.

Age is not a contraindication to surgery as long as the patient is in relatively good health. The results of surgery have been very good. In over 725 operations the relief of pain following surgery in a rheumatoid joint has been excellent. The patients have had improved function, cor-

Figure 2:
The synovium has grown over the ulnar head, destroying the articular surface by pannus. The rough surfaces of the bone can produce a rupture of the extensor tendons.

Figure 3:
Rheumatoid disease can lead to complete destruction of the wrist and metacarpal-phalangeal joints of the hand, as illustrated in this x-ray.

rection of several deformities and a tremendous psychic lift.

In a series of 725 operations since 1959 we have not had a death or serious complication. If the patient has had a flare-up of the arthritis at some time after surgery, the operative joint has remained asymptomatic. At the present time our reported recurrence rate is less than 5 percent.

SUMMARY

Surgery is not a cure or a panacea for the rheumatoid arthritis patient but it can be a very valuable adjunct to medical therapy. Pain relief is dramatic following synovectomy and this fact alone is an adequate reason for surgery. Improved function and correction of deformities as well as prevention of progression of the disease are additional values received from surgery.

Indocin—indomethacin, Merck, Sharp and Dohme, Westpoint, Pennsylvania.

Butazolidin-phenyl butazone, Geigy Pharmaceuticals, Ardsley, New York.

Solucortef—hydrocortisone sodium succinate, Upjohn, Kalamazoo, Michigan.

Mode of Action of Nitroglycerin in Angina Pectoris: Correlation Between Hemodynamic Effects During Exercise and Prevention of Pain

B. F. Robinson (St. George's Hosp, London)

Brit Heart J 30:295-302 (May) 1968

The effect of nitroglycerin on the response to exercise was studied in nine patients with angina pectoris. Arterial pressure was recorded directly and continuously during bouts of exercise before and after sublingual nitroglycerin (0.5 mg); exercise was continued after the drug until either pain was provoked or dyspnea and fatigue prevented further effort. Following nitroglycerin, there was a statistically significant reduction in systolic pressure (av -19mm Hg) and ejection time (av -0.03 per second). The product of heart rate and systolic pressure corrected for changes in ejection time, which is an index of the metabolic needs of the myocardium, was reduced by an average of 17% ($P<0.01$.) The ability to repeat the control work load without pain was always associated with a reduction in the exercising rate-pressure product, but there was little or no increase in the maximum rate-pressure product which could be achieved. The beneficial effect of nitroglycerin in angina pectoris can be accounted for largely, if not entirely, by its effect in attenuating the circulatory response to exercise.

Urinary Light-Chain Excretion in Myeloma and Other Disorders—An Evaluation of the Bence-Jones Test

F. D. Lindström et al (Univ of Minnesota Hosp, Minneapolis)

J Lab Clin Med 71:812-825 (May) 1968

In addition to 37 patients with multiple myeloma, 9 patients with serum M-components not associated with myeloma or macroglobulinemia, 24 control subjects without detectable proteinuria, and 12 patients with heavy proteinuria from renal disease were studied. Free serum L-chains unattached to myeloma proteins were quantitated with antilight chain antisera absorbed with whole 75γG. Of the patients with multiple myeloma, 53% showed quantitative urinary light-chain protein excretion within the range of the normal nonproteinuric controls (0 to 253 mg/24 hr.) Ten of 12 myeloma patients with light-chain disease showed positive heat tests for Bence-Jones protein, high urinary L-chain excretion (650 to 12,000 mg/24 hr), and high levels of free serum light chains. Of the 25 patients with classic myeloma together with 9 patients showing M-components without clinical myeloma or macroglobulinemia, only six showed positive heat tests for Bence-Jones protein. In most of these instances, elevated free L-chains were present in serum.

Foot Surgery in Rheumatoid Arthritis

Leonard Marmor, M. D.*

The foot is frequently involved by rheumatoid arthritis, and severe painful deformities may develop from the disease process. It is extremely difficult for the patient to obtain shoes and because of the painful deformities he cannot walk without shoes. These deformities of the feet may be corrected by surgical procedures with dramatic relief of the pain and cosmetic improvement.

The problems arising in the foot may be divided into those involving the hindfoot and those common to the forefoot.

THE HINDFOOT

The Achilles bursa can be involved early in rheumatoid arthritis and a painful swelling may develop with limitation of ankle motion. Local injections of steroids may relieve the swelling and pain with improvement in function. If no relief is obtained or if symptoms are recurrent, surgical excision of the bursa is warranted.

The peroneal tendons or posterior tibial tendons are covered by a synovial sheath which can be involved by the rheumatoid process. Pain on eversion or inversion of the foot actively with swelling over the tendon sheath is suggestive of a tenosynovitis. Local injection of steroids into the sheath may be of value.

The subtalar joint, the talonavicular, or calcaneocuboid joints may be involved with increasing pain and pronation of the foot. Inversion and eversion motions of the foot are painful and limited. The x-ray will show loss of the joint space and sclerosis about the joint margins. Arthrodesis of the joint may be necessary if the pain is severe. Severe destruction of the subtalar joint can produce a severely flat foot with a large bursa over the talar head on the medial aspect of the foot (Fig. 1). Triple arthrodesis when possible is the best operation.

THE FOREFOOT

The common foot deformities seen in rheumatoid arthritis are clawing of the toes, bunions, and dislocations of the metatarsal-phalangeal joints. These deformities tend to be combined in the advanced case and produce symptoms which are a consequence of the mechanical deformity rather than the arthritis (Fig. 2). The metatarsal-phalangeal joints are disrupted by the synovial proliferation which produces a dorsal dislocation of the phalanx by the long extensor tendon. This results in severe clawing of the toes and forces the metatarsal heads down into the plantar surface of the foot so that the metatarsal arch is destroyed. The prominence of the metatarsal heads causes severe calluses and pain on walking (Fig. 3).

Figure 1:

Rheumatoid arthritis can destroy the joints of the hindfoot producing severe deformities of the foot resulting in a painful flat foot.

Figure 2:

Severe destruction can occur in the forefoot with clawing of the toes, bunions, and dislocation of the metatarsal-phalangeal joints.

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Figure 3:
The dislocation of the metatarsal heads into the sole of the foot produces painful calluses over the bony prominences.

TREATMENT

The clawing of the toes may be reduced by a Z-plasty of the long extensor tendon and a division of the dorsal capsule of the metatarsal-phalangeal joint. If the proximal interphalangeal joint is fixed in a severe deformity, arthrodesis of the joint is best (Fig. 4).

Bunions in rheumatoid patients are best treated by the Keller procedure with removal of the medial prominence of the metatarsal head and excision of the proximal half of the proximal phalanx. All synovial tissue should be removed from the joint.

The severely deformed foot with the dislocated joints and the prominent metatarsal heads in the ball of the foot are best treated by excision of the metatarsal heads and proximal half of the proximal phalanges. A dorsal incision is made over the metatarsal heads exposing the extensor tendons. The extensor brevis tendons are divided to relieve the lateral pull. The proximal half of the proximal phalanx of the second toe is excised, and in a similar manner the third, fourth and fifth bases of the phalanges are removed. Then the metatarsal heads are excised at the neck. The great toe is also treated in a similar manner (Fig. 5). A bulky dressing is applied and weight bearing is allowed at five days.

RESULTS

Two hundred feet have been operated upon for rheumatoid deformities. One hundred and sixty of the operations have been a resection of the forefoot. Patients have been extremely pleased with this procedure because of the loss of pain and cosmetic improvement. The longest follow-up date is 6 years without recurrence.

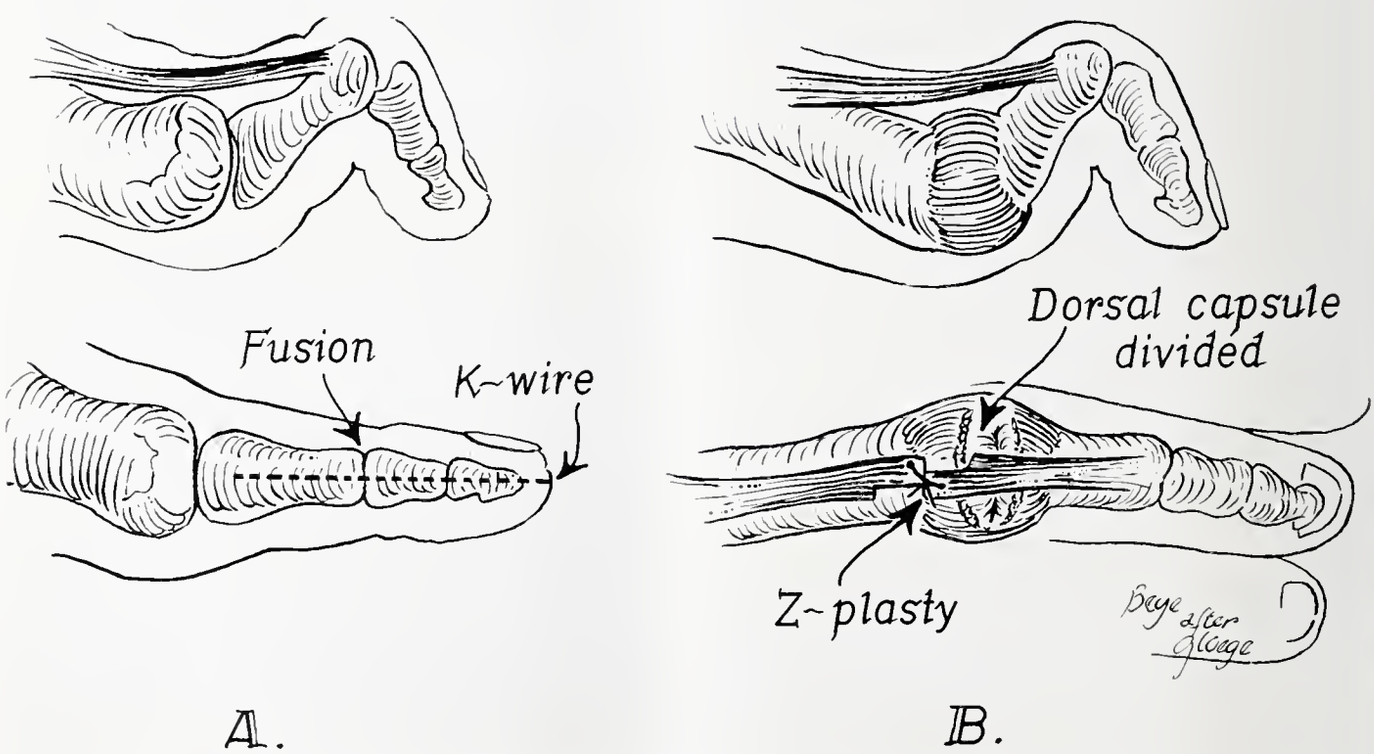

Figure 4:
(A) The claw toes involving the proximal interphalangeal joints may be treated by arthrodesis of the joint;
(B) The subluxation of the metatarsal-phalangeal joints can be treated by a Z-plasty of the common extensor tendon and release of the dorsal capsule.

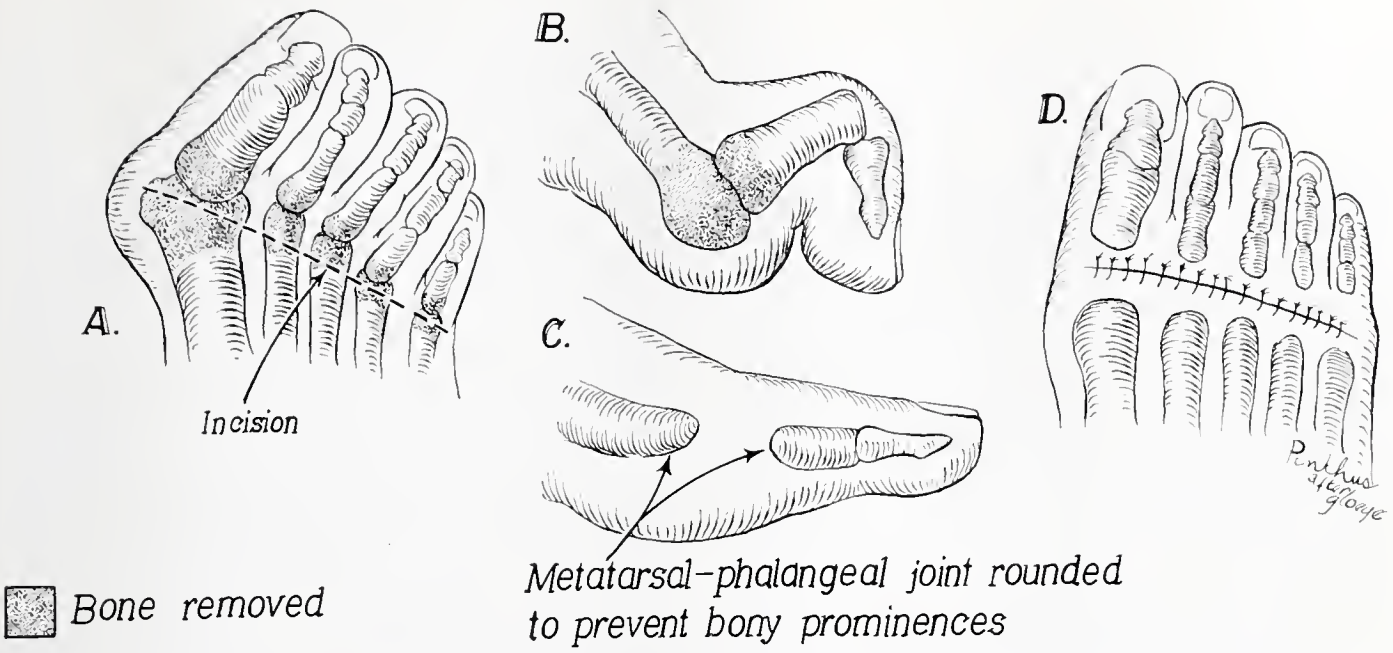

Figure 5:

The severe deformities of the forefoot can be treated best by resection of the metatarsal-phalangeal joints as suggested by Clayton. (A) A transverse incision is made over the dorsum of the foot; (B) The dislocated phalanx depresses the metatarsal head into the sole of the foot; (C) The joint is excised and the metatarsal head rounded to prevent a sharp point; (D) The foot is repaired with the toes in a corrected position.

COMPLICATIONS

There were no major complications in any of the 200 feet operated upon in this series. Wound healing was delayed in some cases over the dorsal incision, especially in patients on steroid therapy with very thin skin, but eventually these healed without difficulty. Several patients had revision of a prominent metatarsal neck.

Figure 6:

(A) This young woman had severe deformities of her foot and was unable to wear shoes.
(B) Two years after resection of her forefoot, the foot was painless and the calluses had disappeared.

Figure 7:
(A) This patient had painful deformities of her feet and a resection of the forefoot was performed.
(B) One year after surgery the feet were painless and well corrected.

SUMMARY

Rheumatoid arthritis can produce severe and disabling deformities of the foot. Surgery can offer pronounced improvement in the patients' feet with dramatic relief of pain. Two hundred feet were operated upon in this series with a high degree of success.

Glomus Jugulare Tumors

H. Rosenwasser (65 E 76th St, New York)
Arch Otolaryng 88:3-34 (July) 1968

Thirty-six cases of glomus jugulare tumors were followed up for 25 years. Localized, benign tumors confined to the middle ear are frequently multicentric and of considerable local invasiveness especially to the jugular bulb, internal jugular vein, and endocranial structures. The utilization of tomography, retrograde jugularography, and angiography often indicate extension far beyond the small lesion in the middle ear. If this can be demonstrated in the preoperative study of the patient, proper surgical procedure can be planned. Irradiation should be utilized, but not as the primary method of treatment. Glomus jugulare tumor is the most frequent tumor encountered in the ear and temporal bone.

Haptoglobin and Catalase Loci in Man: Possible Genetic Linkage

W. E. Nance et al (Vanderbilt Univ School of Medicine, Nashville, Tenn)
Science 160: 1230-1231 (June 14) 1968

During a genetic study of blood specimens from a Brazilian population sample of approximately 200 families, four families with slow- and fast-migrating electrophoretic variants of human erythrocyte catalase were encountered. Tests for nine genetic polymorphisms provided evidence suggesting linkage only in the case of the haptoglobin system. Measurement of catalase activity in individuals having deletions of the D_1 chromosome or D_1 trisomy could provide an independent test of the hypothesis that the broad zone of human erythrocyte catalase activity observed on starch gels may result from the presence of isozymes.

Replication of Animal Viruses

Anderson J. Ward*

Viruses are currently being studied so effectively that even the most devout follower of the science finds it difficult to stay abreast of new developments. Seventy-six years ago Loffler and Frosch demonstrated the first animal virus, the agent which caused foot and mouth disease. A decade later, 1902, evidence for the first human virus, yellow fever, was obtained[1]. It has only been in recent years that advances in methodology have permitted discoveries to flourish until now it is estimated that there are between 500 and 1,000 known animal viruses. Today an abundance of information is available for some of the more intensively studied viruses, while little is known about others. Considering this, it is inevitable that present concepts will be expanded in the future.

Lwoff[2] defined viruses as infectious agents containing either deoxyribonucleic acid (DNA) or ribonucleic acid (RNA) as a single nucleic acid component. These agents multiply from their own nucleic acid and do not possess energy-generating enzymes. Their nucleic acid is enclosed within a capsid or shell which is composed of structural protein subunits assembled in a precise, characteristic geometrical fashion. In addition, some viruses may possess a lipoprotein envelope external to the capsid. The mechanisms by which many of these infectious agents replicate have been extensively studied and it now appears that the basic processes may encompass all viral groups. The fundamental steps in replicating animal viruses are analogous to those of bacterial virus systems, although many very obvious and very important differences have been detected. It is the purpose of this report to review general host-parasite relationships of several prominent animal viruses and to indicate how these viruses are able to affect the physiology of an infected host.

ADSORPTION

Viruses depend on a capacity to invade living cells for their very existence. The first step in this invasion process is known as adsorption, which is defined as the attachment of a viral particle to a cell. In bacterial systems adsorption is a highly specialized event involving the attachment of viral tail fibers to specific receptor sites on the bacterial cell surface. Such a specific mechanism of attachment has not been demonstrated among animal viruses. In fact, adsorption seems to be an almost casual event. It is only among the myxoviruses that a mechanism of adsorption is found which approaches that of the bacterial virus systems.

Hirst[3] and McClelland and Hare[4] observed that influenza virus, one of the myxoviruses, would agglutinate fowl erythrocytes. Subsequent studies indicated that the mechanism involved in agglutination of erythrocytes might be the same used by the myxovirus to gain attachment to susceptible cells. In addition, every myxovirus has the enzymes neuraminidase on its surface, and infection by a myxovirus without a functioning neuraminidase has not been demonstrated. Obviously this enzyme must be important to the virus, although just how it functions remains a mystery. It could be that neuraminidase allows penetration of the cellular membranes or perhaps neutralizes a host mucoprotein secretion which might interfere with a viral particle's ability to reach susceptible cells.

In general, it suffices to say that animal viruses attach to animal cells with far less specificity and with much less efficiency than bacterial viruses attach to bacterial cells. Rather than attaching by specific tail fibers, animal viruses apparently adsorb at sites located on each subunit of its protein coat.

PENETRATION

The passage of an adsorbed virus into a cell marks the second step in the establishment of cellular infection, a phase known as penetration. Bacteriophage penetration is an active process whereby the tail contracts, injecting nucleic acid into the cell. Animal viruses do not require this sort of active mechanism; their penetration is accomplished by natural cellular processes such as pinocytosis. This type of passive penetration implies that the entire animal viral particle enters the cell. Such an implication contrasts sharply

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with that of bacteriophages, of which only the nucleic acid component enters the cell. There is no firm evidence to support any similar selective penetration among animal viruses, but it has been suggested that a more or less intimate reaction occurs between the envelope of Newcastle disease virus and the cell membrane of Erlich ascites tumor cells[5]. Also, Holland and Hoyer[5] suggested that poliovirus reacts chemically with cell membranes. Both of these suggestions await further verification. At present penetration is in some ways analogous among bacterial and animal viruses as well as markedly different.

ECLIPSE

Once an infectious virus has penetrated a susceptible cell, viral nucleic acid must be released from its protective protein capsid. During this interval commencing with this release and ending with the production of new infectious particles, the presence of virus within a cell is undetectable by usual procedures. This interval is appropriately referred to as an eclipse phase. The eclipse phase represents the vegetative portion of the viral life cycle.

One interesting perplexity of this phase is the manner by which viral nucleic acid is freed within a cell. Two possible mechanisms have been considered: (1) cellular enzyme activity upon the protein capsid, and (2) physical stresses upon the capsid. In the former case, there is also the further consideration of whether an "uncoating enzyme" is pre-existent or is induced by the virus itself. A general model here is not yet available but there is evidence to support both possibilities. Holland and Hoyer's suggestion that poliovirus reacts chemically with a cell membrane supports the theory of release through physical stresses. Joklik[7], however, has suggested that DNA is released from poxviruses through the action of a special "de novo" formed enzyme. It is necessary to realize that any detection of differences among viruses during the eclipse phase will be a formidable task because of the very nature of the phase. Still, two possible mechanisms of nucleic acid release are being considered and either or both of these may eventually be indicated as universal processes among viral infections.

REPLICATION

Once viral nucleic acid is freed inside a susceptible cell it proceeds to gain control of the metabolic mechanisms of that cell and sets in motion a complex phase of active synthesis, an event which may result in destruction of the cell and liberation of new viral particles. A virus may initiate the synthesis of new, induced enzymes or may utilize those of the infected cell for this purpose. One cellular enzyme frequently appropriated by a virus is DNA polymerase, an enzyme which facilitates DNA uncoiling and duplication. All DNA viruses require DNA polymerase for replication, and normal cellular DNA polymerase is a convenient source of this enzyme. Various induced enzymes will be described later. It becomes apparent that the replication of viral particles involves very intricate mechanisms, many of which are not entirely understood. Present knowledge, however, indicates that mammalian viruses replicate by one of four broad processes: (1) RNA viruses replicating wholly in the cytoplasm, (2) RNA viruses synthesizing protein in the cytoplasm and nucleic acid in the nucleus, (3) DNA viruses replicating wholly in the cytoplasm, and (4) DNA viruses replicating wholly in the nucleus.

Although the synthesis of nucleic acids and the synthesis of proteins are closely linked, the utilization of various techniques and the employment of specific biological inhibitors has permitted the study of each as largely independent processes. Once active synthesis is begun the earliest changes within an infected cell seem to be in the normal activities of the nucleus. It appears that normal RNA synthesis is suppressed soon after infection as a consequence of the inhibition of action of DNA-dependent RNA polymerase[8]. At present, the consensus is that RNA synthesis takes place exclusively within the nucleus in direct apposition to a DNA-template and is dependent upon the action of this enzyme. Furthermore, it is agreed that continued synthesis of RNA is necessary for the continuance of protein synthetic activity. These two assumptions seem to contradict each other, but one other factor must also be included. After a period of time there is an onset of RNA synthesis in the cytoplasm rather than in the nucleus. Most workers regard this cytoplasmic synthesis as being the production of viral RNA. This is not an unreasonable postulation considering that the onset of cytoplasmic RNA synthesis corresponds well with the appearance of mature, infective progeny virus in the cytoplasm. Also, once RNA synthesis is begun

in the cytoplasm powerful inhibitors of DNA-dependent RNA synthesis are ineffective and do not prevent the maturation of infective progeny virus. It would seem that viral RNA synthesis within the cytoplasm of a cell is brought about by a mechanism distinct from that by which normal RNA is produced. This concept would explain the replication of the picornaviruses.

Picornaviruses: This group is composed of small RNA-containing viruses of which poliovirus is one member. Because of the great interest in poliovirus, this group is the most thoroughly understood of all viral groups. Picornaviruses contain a molecule of single-stranded RNA[9], and consequently represent the simplest package of genetic material known capable of inducing self-replication. Picornavirus replication has not been shown susceptible to inhibitors of DNA-dependent RNA synthesis, as DNA synthesis can be inhibited without ill effects on some RNA viruses[10]. Therefore it is concluded that cellular DNA does not serve as an intermediate in the synthesis of picornaviruses. Since the RNA of these viruses is single-stranded, some other intermediate template must be formed. Perhaps this intermediate exists as a mirror image of the viral RNA, and results from the action of a new RNA polymerase.

It is also known that during the rapid growth period of these viruses there is an almost complete suppression of host cell RNA and protein synthesis[11,12]. This would suggest that the virus itself accounts for suppression of host cell metabolism and demonstrates just how profound a viral infection may be. Evidence to date suggests that picornaviruses replicate wholly within the cytoplasm of an infected cell[13]. Baltimore's[14] discovery of viral RNA polymerase associated with large cytoplasmic structures within infected HeLa cells has given support to this idea.

Myxoviruses: This is a rather unstable group of RNA viruses including mumps, influenza, and measles viruses, all of which have strong affinities for certain mucoproteins. The instability of these viruses has prevented accumulation of exact biochemical profiles, although two unique features have been observed within this group: (1) the origin and mechanism of synthesis of the lipoprotein envelope, and (2) the separate nuclear and cytoplasmic synthesis of viral components which eventually join to form completed particles.

It is generally believed that the viral lipoprotein envelope surrounding myxoviruses is derived entirely from the host cell[15]. Electron micrographic studies have confirmed this belief[16], although there is still question as to whether the envelope is newly formed or is borrowed from the cell. Whichever the case, it seems likely that the envelope may also be important in facilitating infection by the myxoviruses, and may account for the "in vitro" hemagglutination phenomenon.

Intracellular synthesis of myxoviruses has been studied by many workers[17, 18, 19, 20, 21, 22] and present evidence suggests that replication occurs at two sites. The RNA of myxoviruses seems to be synthesized within the nucleus of an infected cell whereas its protein is synthesized in the cytoplasm. Ultimate association of these viral components takes place near the plasma membrane of the infected cell. It is probable that mature viruses are "leaked out" of a cell rather than liberated through cell lysis. Such a release mechanism allows the viruses to become intimately associated with the cell membrane for a period of time. This contact may provide for the acquisition of cellular lipoprotein by these viruses as an envelope.

Poxviruses: This group is composed of large brick-shaped viruses such as smallpox virus and vaccinia virus. Vaccinia, the most thoroughly studied member of this group, is one of the most complicated animal viruses. Its nucleic acid complement, which consists of a large single molecule of double-stranded DNA[23], is the largest viral genome recognized. One of the most striking observations concerning this group has been that irradiation of host cells before infection prevents the uncoating of viral DNA even though infection may ensue[24]. This implies that the virus has the capacity to induce formation within the cell of a new enzymatic function which may release the viral DNA from its capsid. Once released inside a cell, vaccinia DNA completely dominates the cell's metabolism. Indications are that viral replication is localized at specific sites within the perinuclear cytoplasm of an infected cell[25, 26]. It is probable that these "cytoplasmic factories" have been visualized for years as typical inclusion bodies.

Investigators studying viral induced enzymes

possess a fortuitous tool in the poxvirus group. The cytoplasmic production of viral DNA along with nuclear production of host cell DNA has made study somewhat easier. Present evidence suggests that at least two enzymes are newly synthesized under the direction of the DNA of vaccinia virus. These enzymes are thymidine kinase and DNA polymerase[27, 28, 29]. Other information suggests that RNA synthesis is necessary to initiate the control mechanisms which govern normal cellular protein synthesis; however, such control functions are not expressed unless protein synthesis occurs[30, 31]. These findings give a very definite demonstration that genetic repression requires both RNA and protein synthesis.

Adenoviruses, herpesviruses and pseudorabies virus: These as well as several other DNA viruses, in marked contrast to the poxviruses, show nuclear rather than cytoplasmic replication. They have a smaller genome than the poxviruses, but any connection between size and site of multiplication would be purely speculative. The relationship of viral DNA to host DNA and the mechanism by which the synthesis of these viruses is directed now offer one of the most challenging areas of biochemical investigation. At present only questions can be proposed: (1) is the viral RNA transported to the cytoplasm and the resulting protein product brought back to the nucleus, and (2) what are the roles of new enzymes in such latent infections as depicted by herpesviruses? The solving of these puzzles will be immensely rewarding and beneficial for further understanding of viral infections.

Unusual viruses: In any biological system there are always entities which do not fall into established groups. One such virus is reovirus, which possesses a double-stranded RNA[32, 33, 34]. This quality has not been recognized in any other organism. In addition, reovirus replication is inhibited by actinomycin-D[33, 35]. This implies that DNA must mediate the synthesis of reovirus components. Polyoma virus, an oncogenic virus of mice, possesses the unusual nucleic acid, cirular-double-stranded DNA[36, 37] which may also exist as a linear molecule. To date, mechanisms of polyoma virus replication are not clear. Finally, two small bacteriophages and a recently isolated animal virus[38] possess single-stranded DNA. Replicative mechanisms here are also unknown.

MATURATION AND RELEASE

It becomes obvious from the foregoing that sites of replication may vary among viral groups. However, once new viral nucleic acid and new viral protein have been manufactured, component parts must be assembled and ultimately released from the infected cell. Both processes are relatively simple when compared with replication itself. The picornaviruses probably represent the least complex maturation and release process. Their maturation seems to be simple copolymerization of protein and nucleic acid while their release seems to be direct consequence of cell destruction. Maturation of other groups such as myxoviruses, poxviruses, adenoviruses and herpesviruses seems to be similar but their release is quite different. None of these viruses are released from an infected cell in significant numbers even though the infected cell may die. As mentioned earlier, the lipoprotein envelope of some viruses is felt to be host material. It is probable that these viruses are slowly extruded from the cell, acquiring a portion of the host's cell membrane as a lipoprotein envelope.

SUMMARY

It is apparent that among animal viruses there is no model system. Each group as well as a few miscellaneous viruses demonstrates unique processes and unique sites of synthesis. It is not difficult to concede, on the basis of the few points presented above, that viruses as infectious replicating agents are able to affect man's physiology and metabolism quite markedly. Those who study these systems are constantly confronted with very complicated problems, but their answers to such basic biological questions will explain many current perplexities.

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STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
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Conization of the Cervix During Pregnancy

John P. Curlin, M. D.*

INTRODUCTION

There has been a great deal of controversy during the last twenty years as to the proper management of lesions of the cervix which are clinically suspicious of malignancy or microscopically reveal marked epithelial atypia or intra-epithelial carcinoma. This problem became acute with the general use of the Papanicolaou smear during pregnancy. A significant number of expectant mothers have smears positive for malignancy, and yet the majority have no evidence of invasive cancer. Obviously microscopic examination of the cervical tissue is necessary to determine if these patients have invasive carcinoma or a lesser lesion. The confusion that existed for a good number of years as to what epithelial changes are associated with pregnancy and what are carcinoma in situ or severe atypia has been clarified. The same microscopic criteria for premalignancy and malignancy are valid in the pregnant or nonpregnant cervix. Although the confusion concerning the pathology of the cervix has been resolved, there is still controversy as how to best obtain an adequate sampling of the cervical epithelium for diagnostic study.

During the past eight to ten years the majority of authors have advocated the use of cold knife conization of the cervix during pregnancy when a positive cytological smear or abnormal cervical biopsy was obtained. With an increased acceptance of the colposcope in the United States in the last five years, there have arisen advocates of multiple punch biopsies of the cervix without conization. There have also been advocates of multiple punch biopsies who do not use the colposcope.[4] An occasional author does not feel that all postive smears require investigation during pregnancy.[9] These authors feel that their techniques are accurate and that conization of the cervix is associated with sufficient risk to both mother and fetus to make conization an undesirable procedure during pregnancy. I have been impressed that the conizations of the cervix during pregnancy performed at the University of Arkansas Medical Center have been associated with very few complications to mother or fetus. A review of all conizations during pregnancy since 1960 was undertaken to determine the indications for conization of the cervix and the significant hazards encountered in its use. All conizations of the cervix at the UAMC are performed with use of *Pitressin, as a hemostatic agent. Harper, Brown and Workman reported our experience with this agent in a large number of gynecological patients. Mention was made of a number of gravid patients but very little detail concerning complications or other intriguing aspects peculiar to pregnancy were noted. Further investigation of the above mentioned patients has been carried out in order to determine if the Pitressin cone is a safe and advantageous method of obtaining an adequate cervical biopsy during pregnancy.

HISTORICAL BACKGROUND

Conization of the cervix was first performed by Listranc in 1815. The procedure soon fell into disrepute due to the complications of hemorrhage, infection, and cervical stenosis. Sturmdorf revived a modified conization in 1916 in which he inverted the mucosa flaps into the cone bed in an attempt to achieve hemostasis.[3] It is not known who first advocated the cervical cone dur-

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*Parke, Davis and Company, Detroit, Mich. (Vasopressin)

ing pregnancy, but it is certain that there was no enthusiasm for the procedure in the pregnant female until relatively recent times.

The third edition of TeLinde's *Operative Gynecology,*[8] states that "Conization in pregnancy may be attended by considerable bleeding and should be avoided."

Recently other authors have begun to state the opposing view[1] and believe that conization of the cervix should be performed during pregnancy when indicated since cervical biopsies are not sufficient to rule out invasive carcinoma, and although risks are inherent to mother and fetus—the advantage of early knowledge and treatment of invasive carcinoma of the cervix outweighs these risks.

Most obstetricians do not feel that carcinoma in situ should contradict vaginal delivery. Invasive carcinoma is an entirely different problem for this lesion combined with vaginal delivery is associated with serious complications to the mother.

O'Leary, Munnell and Moore[7] have summerized the problem of carcinoma in situ vs. invasive carcinoma: "The basic principle in managing carcinoma in situ involves the exclusion of co-existing invasive carcinoma. Obviously this cannot be done with the solitary punch biopsy. Cone biopsy is the indicated diagnostic procedure with multiple punch biopsies or four quadrant biopsies reserved for those patients in whom cone biopsies seems technically infeasible."

"The problems of diagnosis and treatment of cervical carcinoma during pregnancy are fundamentally similar to those associated with cervical carcinoma in general, improving prognosis due to early detection. It is to be emphasized that the chief threat to the pregnant patient is not alteration of the biologic behavior of the neoplasm or decreased biologic resistence of the host, but the delay in diagnosis and treatment that so frequently occurs during pregnancy."

Numerous conization techniques have been proposed. Most authors have advocated a shallow cone[6], while others indicate the deeper standard conization[1], or a shallow cone with biopsy of the apex of the cone site.[5] Bleeding has been controlled with various suture techniques, electrocoagulation, and packs. Occasional authors have advocated hemostatic agents. These agents have included epinephrine, penylephrine, or octapressin, in dilute solutions.[2]

We have joined this latter group in advocating a hemostatic agent. The hemostatic agent of choice we feel is Pitressin. Rarely are there any other techniques required for hemostasis when this agent has been used. When used in the proper dosage there is no threat to mother or fetus.[3]

EXPERIMENTAL PROCEDURE

This is a retrospective study of 27 conizations of the cervix performed during pregnancy. The operations were performed at the UAMC from 1960 until the present time (1968). All conizations were performed by the Resident Staff of the Department of Obstetrics and Gynecology. A standard technique was used in all instances. This technique was as follows: 10 units of Pitressin were mixed with 80 cc. of sterile saline, and 1 to 1.5 cc. of the above solution was injected submucosally into each of four quadrants of the cervix. This was a total dose of 0.5 to 0.75 units of Pitressin. Three to five minutes were allowed to lapse and when blanching of the cervix occurred, a shallow (1 to 1.5 cm. deep) cone was removed by means of a sharp knife. *Surgicel was placed in the cone site and approximately one-half of the patients had a vaginal pack in place 24 hours. Blood loss was estimated by the physician who performed the conization. Delayed blood loss was estimated by a review of the hospital records. The charts were also reviewed to ascertain the reason for conization, correlation of cone diagnosis and cervical biopsy, fetal risk, maternal risk, and long term complications.

RESULTS

Twenty-seven cones were done during pregnancy with the use of Pitressin for hemostasis. (Table I) The average age of all the patients undergoing conization was 28 years. The average age of those patients with carcinoma in situ was 30.7 years, severe atypia 28 years and benign

TABLE I
GENERAL DATA

Total Patients	27
Average Age	28
With Carcinoma in Situ	30.7
With Severe Atypia	28
With Benign Lesions	25.9
Average Gravity	6.3
Average Parity	3.9
Negro Patients	25
White Patients	2

*Johnson & Johnson, New Brunswick, N. J. (Oxidized regenerated cellulose)

lesion 25.9 years. The average gravity was 6.3, parity 3.9. There were 25 Negro patients and 2 white patients. The 27 cone specimens revealed microscopically one invasive carcinoma, nine carcinomas in situ, seven severe atypias. Ten patients with severe atypia, carcinoma in situ or invasion had a visible cervical lesion. (Table II) Six patients had no visible lesions present. All of the 17 patients with severe atypia, carcinoma in situ, or invasion were asymptomatic. Eight of the ten patients without significant pathological findings had clinical lesions and symptoms which were clinically suspicious of malignancy. Cervical biopsies were performed prior to conization in all but one instance.

TABLE II
LESIONS AND SYMPTOMS

GROUP I	
Mild to Moderate Atypia	10
Severe Atypia	7
GROUP II	
Carcinoma in Situ	9
Invasion Carcinoma	1
SYMPTOMS	
Group I	8/10
Group II	0/17
LESIONS (Visable)	
Group I	10/10
Group II	11/17

The cytological smear, cervical biopsy and cone biopsy were evaluated as to their degree of correlation and effectiveness in diagnosing lesions of the cervix. Two patients did not have a Pap Smear prior to biopsy. Thirteen cervical biopsies agreed pathologically with the final cone biopsy and 13 biopsies were in disagreement. Of the 13 instances in which cone and biopsy agreed, 8 patients had negative smears and the biopsy was done for a clinically suspicious lesion. The cone was then done due to mild or moderate atypia found on biopsy. There were eight significant instances of disagreement between biopsy and conization. A significant disagreement was felt to be present if the biopsy indicated a premalignant process when conization revealed definite intra-epithelial carcinoma or invasive carcinoma of the cervix. The remaining patients with disagreement of the cervical and cone biopsies were found to have severe atypia on conization and mild to moderate atypia on biopsy. In no instance was a lesion completely removed by biopsy.

The earliest conization was done at 12 weeks gestation and the latest at 36 weeks gestation. (Table III) Only one cone was done in the first trimester, 15 in the second, and 11 in the third trimester. The blood loss from conization was separated into two groups—immediate and delayed. Immediate loss was estimated at surgery and varied from 5 to 250 cc. The average loss was 67.5 cc. There were three patients with a delayed blood loss. One of these patients aborted 3 weeks following conization and her blood loss was that associated with the abortion. The other two patients lost 100 and 150 cc. of blood respectively. Their total was 250 and 300 cc. of blood.

TABLE III
GESTATION AND BLOOD LOSS

Trimester in which conization was performed:		
First	1	(12 weeks)
Second	15	
Third	11	(latest - 36 weeks)
Blood Loss:		
Immediate		5 - 250 cc.
Average		67.5 cc.
Delayed		(Three Patients)
(a) Abortion - 250 cc.		
(b) 100 cc. - total 250 cc.		
(c) 150 cc. - total 300 cc.		

TABLE IV
THE FETUS

22	Normal Infants
1	3 pound 12 oz. premature - 3 months postconization - did well
1	1 pound 4 oz. abortion - 3 weeks postconization
1	Hysterotomy
2	Delivered at other hospitals-presumed normal
1	Undelivered

Two patients who were coned during pregnancy delivered at other hospitals. (Table IV) One patient is undelivered at this writing. Each of these patients were last seen when the fetus was statistically viable. There was one premature delivery three months postconization and one abortion three weeks postconization. There was one hysterotomy for treatment of invasive squamous cell carcinoma. The abortion is the only fetus known lost which could in any way be related to the conization.

Postpartum treatment was divided into three groups. The patients with benign biopsies, cone specimens and cytology smears were given routine postpartum care. Of 7 patients with severe atypia, three were lost to follow-up, one is undelivered and one was found to have carcinoma of the cervix Stage I after being lost to follow-up for three years. Two had Class III Pap smears

on postpartum examination. Repeat conization revealed invasive carcinoma of the cervix in one patient and severe atypia in the other, both patients underwent hysterectomy.

Seven of the nine patients with carcinoma in situ had a hysterectomy within eight weeks of delivery. Five of these were Caesarean hysterectomies. Two patients were lost to follow-up. Seventeen patients had significant pathology on their cone specimen. Five of these patients were lost to follow-up and six were found to have residual pathology either on repeat conization or hysterectomy specimen.

Evaluation of successful pregnancy following conization was hindered by the fact that nine patients had no follow-up, eleven more were treated by hysterectomy and one patient had a tubal ligation. One patient remains undelivered at this time. Four of the five patients who desired further children had a total of nine viable pregnancies. One patient had cervical stenosis following conization and this was followed by two first trimester abortions.

DISCUSSION

This study was primarily designed to evaluate the efficiency of the Pitressin cone in pregnancy and to test other clinical impression that there were few maternal or fetal hazards associated with this procedure. The recognized complications of conization during pregnancy are bleeding from the cone site, rupture of the amnionic sac, cervical lacerations, incompetent cervical os, cervical dystocia and fetal prematurity.

Our study of these twenty-seven patients clearly shows that maternal bleeding need no longer be a problem if one uses Pitressin for hemostasis. An average blood loss of only 67.5 cc. and the largest total blood loss of only 300 cc. adequately speaks for itself. The use of Surgicel in the cone site and an occasional vaginal pack may account for a moderate degree of success in hemostasis. I do not believe that Surgicel or vaginal pack contribute significantly to hemostasis, after reviewing numerous reports in which they were used without Pitressin and were found to be ineffective. The lack of rupture of the amnionic sac, cervical lacerations, incompetent cervical os and cervical dystocia show these factors to be obviously unrelated to the use of Pitressin. It may be that the use of a somewhat shallow cone prevents the occurrence of these complications. One patient did develop cervical stenosis and two abortions. The abortions were not typical of incompetent cervical os, but may possibly be related to the cervical conization.

The fetal hazard is the second major complication of conization during pregnancy. One was aborted following conization. This patient was the only patient coned during the first trimester. She had idiopathic thrombocytopenic purpura and a history of two previous first trimester abortions. It is well recognized that conization during the first trimester is associated with a much greater incident of abortion. This fetus may have been therefore lost due to an error in judgment of proper time for conization, rather than as a result of the procedure itself.

Surprisingly the patient with thrombocytopenic purpura only lost 100 cc. of blood at the time of conization. One fetus was sacrificed in order to treat the mother adequately for invasive carcinoma of the cervix. There was also one 3 pound, 12 ounce premature delivered three months postconization. Even assuming this premature delivery due to conization, the Pitressin cone done only from the second trimester to 36 weeks gestation, and done somewhat more shallow than one would in the normal gynecology patient, seems to present a minimal maternal or fetal hazard. The opponents of the cervical conization argue[4] that adequate biopsies will give all necessary information, and that even the minimal hazard that conization presents to mother or fetus is unacceptable. We do not take more than a four quadrant cervical biopsy and do not use a colposcope. The fact that seven carcinomas in situ, and one invasive carcinoma, were missed by cervical biopsy vividly illustrates that the routine four quadrant biopsy is not adequate but must be followed by conization if it reveals less than invasive carcinoma and has been preceded by a Class III cytological smear.

Eight cones in our series of 27 were unnecessary according to our present criteria. All were done in the early 1960's and must reflect some of the confusion that was present at that time concerning true pathologic changes of the cervical epithelium during pregnancy. These cones were profitable in that they demonstrate that as a rule the patients may be followed with cytology. This is not to say that suspicious cervical lesions should not be biopsied, but that if the smear is negative, and the biopsy reveals mild to moderate

atypia, nothing more need be done. I would question the use of routine cervical biopsy because of suspicious smear when there is no gross lesion present on the external portion of the cervix, unless invasion were demonstrated, as is unusual without a gross lesion, subsequent conization would be required. I propose that all obstetric patients be primarily evaluated with cytology, and that biopsy be reserved for truly suspicious lesions. If the smear is a Class II they should have repeat smears only, if the smear is Class III (suspicious for malignancy) and there is no evidence of invasion, then one should proceed directly to conization. If the smear is Class III and there is a lesion highly suspicious of invasion, ("target lesion") cervical biopsy should be done prior to conization. The treatment of the patient following conization is extremely important if severe atypia, carcinoma in situ or invasion has been diagnosed.

There is no controversy as to treatment if invasion is present, the uterus is emptied as soon as feasible, and surgery or irradiation is employed. Problems in treatment arise when the patient has been found to have severe atypia or carcinoma in situ. Severe atypia should be treated as a premalignant lesion since it has been found to be associated with carcinoma in situ in one-third of the cases and to be followed by invasive carcinoma of the cervix in approximately 3.8% of all cases[1]. The malignant potential of carcinoma in situ of the cervix is well documented. Conization is not sufficient treatment for either severe atypia or carcinoma in situ as is evident by the presence of six cases in which significant pathology was found at conization postpartum or at hysterectomy. One patient with severe atypia had coexisting carcinoma in situ, and one developed an invasive lesion three years following her conization during pregnancy.

I propose that when a patient has been found to have severe atypia or carcinoma in situ of the cervix on cone biopsy, that she be allowed to deliver vaginally if she desires further pregnancies and that she be followed closely with cytology smears postpartum. If her smears become positive then conization should be repeated and the patient treated according to the results of this conization. If the patient has completed her childbearing function, a caesarean hysterectomy or vaginal delivery followed by hysterectomy at six or eight weeks postpartum is the treatment of choice. If the patient is irresponsible a caesarean section hysterectomy is the preferred procedure. Five patients were lost entirely to follow-up, and one patient was lost long enough to develop invasive carcinoma in our series of 27. One can only speculate as to the final outcome of the five patients with documented severe atypia or carcinoma in situ.

SUMMARY

A review of the 27 conizations of the cervix performed during pregnancy with the aid of Pitressin has been carried out. The presence and absence of fetal and maternal complications has been discussed. The value of conization as opposed to biopsy has been evaluated. A rational of antepartum management has been proposed for the patient with a smear, and/or cervical lesion suspicious for malignancy. A rational for treatment following conization has also been advocated.

CONCLUSIONS

Conization of the cervix during pregnancy is an adequate and safe procedure when Pitressin is used for hemostasis and a shallow specimen is obtained. Cervical biopsy is not adequate to rule out carcinoma of the cervix in situ or invasive carcinoma of the cervix during pregnancy. Conization of the cervix during pregnancy is not adequate treatment of severe atypia or carcinoma in situ.

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ELECTROCARDIOGRAM OF THE MONTH

AGE: 39 SEX: Male BUILD: Slender BLOOD PRESSURE: 108/68

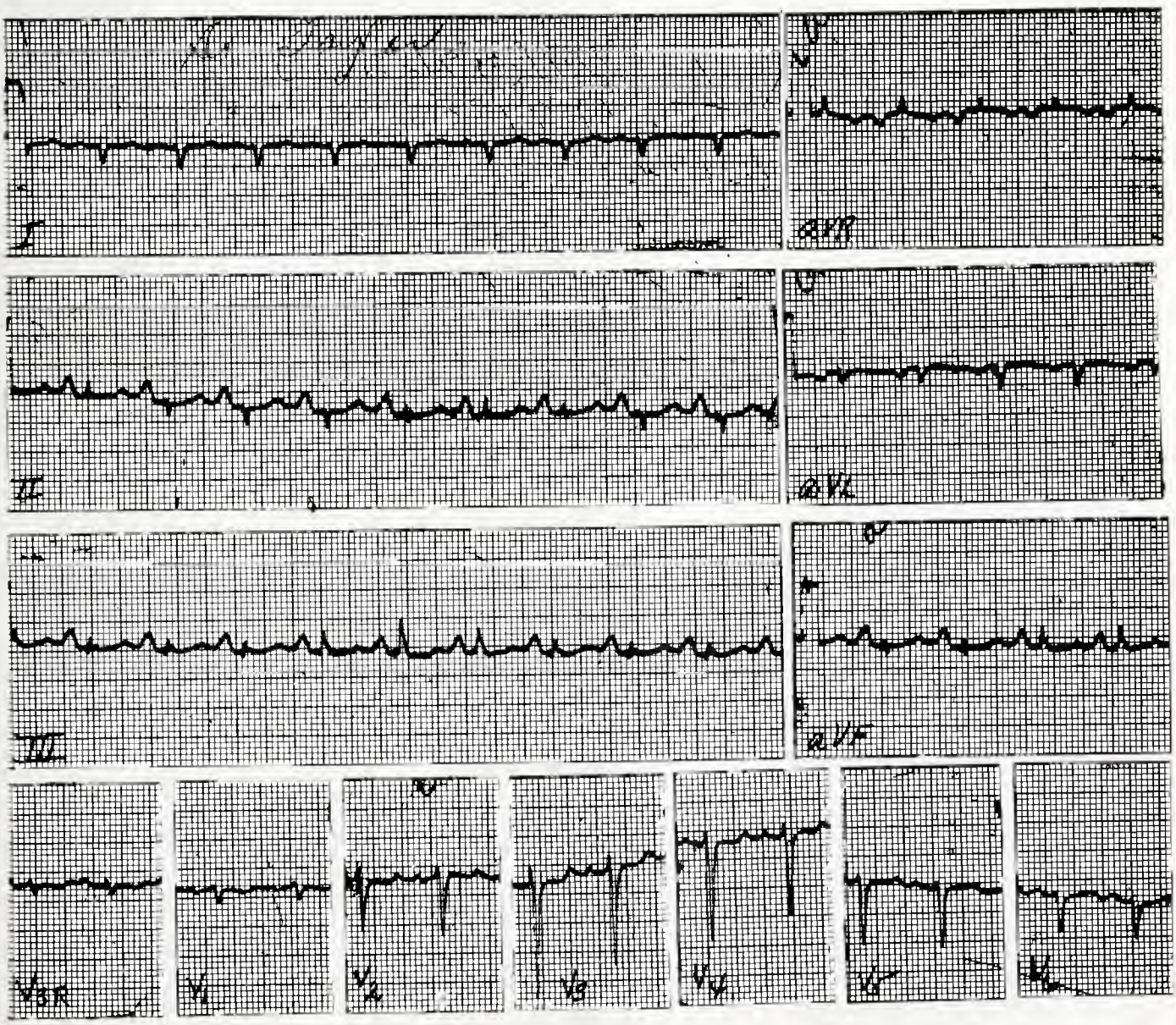
CARDIAC DIAGNOSIS: Chronic cor pulmonale

OTHER DIAGNOSES: Chronic obstructive lung disease; alpha antitrypsin deficiency

MEDICATION: Antibiotics

HISTORY: Marked dyspnea for years

See Answers on page 197



The Department of Medicine, University of Arkansas Medical Center
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PH

PUBLIC HEALTH AT A GLANCE

Ambulance Service In Arkansas

A recent survey was conducted by the Arkansas State Department of Health, Division of Safety, in an effort to determine the status of ambulance service in Arkansas. The survey was conducted with a 72-item questionnaire completed by staff members in a personal interview with operators.

There are one-hundred fifty-nine ambulance operations in Arkansas; one-hundred twenty-four of which are operated by funeral homes, nineteen by commercial ambulance firms, six by fire departments, five by police departments, and three are hospital operated, while two are operated by volunteers.

Three counties in Arkansas have no available ambulance service within the county; they are Newton, Perry, and Calhoun counties.

Generally, all ambulance services have personnel on duty on a 24-hour basis, at the base station; however, there are some situations where personnel must be called in from outside the base station to man the ambulances on any emergency call.

Eighty firms indicated they serve the city, and/or town, plus the surrounding rural areas. While forty-seven firms indicated that they covered all of one county and portions of another. One-hundred thirty-three firms stated they use stand-by equipment when more than one request for emergency service was received at a time. In almost all instances the stand-by equipment used by funeral homes, was dual purpose equipment, in which their major function was for funeral purposes. In the commercial ambulance firms, older equipment was used as stand-by equipment.

The average distance, as indicated by the questionnaire, from the pick-up point to the nearest medical facility where emergency medical staff and facilities are available was from 5 to 15 miles.

Twelve firms stated that inadequate staffing of the emergency room was a problem encountered upon arrival. Seventy-seven firms indicated that they sometimes found inadequate staffing upon arrival. Forty firms said they frequently found a doctor not readily available, and seventy-seven firms indicated that they sometimes encountered this problem. Fifty-three firms reported that delays with the receptionist was sometimes a problem.

Over half of the firms in the State who had one straight ambulance, which is a vehicle used for no other purpose, used the converted station wagon for this service. One-hundred forty-seven firms stated that they did not have to comply with local speed limits; compliance was up to the driver on call, having due regard for existing traffic conditions. Routine maintenance check of vehicles was noticeably lacking, only thirty-two firms replied that they did have a daily check list for maintenance.

One-hundred five firms indicated that ambulances were dispatched with only one person making the run. When asked if the firms' vehicles carried the equipment recommended by the American College of Surgeons, Committee on Trauma, the majority of the firms indicated that they did carry some of the equipment; but only one or two firms indicated that they carried all of the equipment recommended by the committee. A majority of the firms indicated that it took from 15 to 25 minutes from the time the vehicles were dispatched, until it arrived at the medical facility. Forty-six firms indicated that they arrived in less than 15 minutes; and thirty-nine firms stated that it took from 26 to 40 minutes to arrive at the medical facility.

The routine application of first aid measures prior to placing the victim in the vehicle was grossly lacking. Only 30% of the operations in-

dicated they routinely perform this service. Ninety of the one-hundred fifty-nine firms indicated that they never found prior first aid administered by a peace officer upon their arrival at the scene. This same figure holds true when asked whether they had found citizens having administered first aid. Less than half of the firms indicated that their personnel was able to handle emergency child birth, communicable diseases, radiological accidents, or psychiatric cases. Only sixty-two firms, out of the total one-hundred fifty-nine required their employees to have or to take first aid training; and only twenty-seven indicated they required their employees to take cardiopulmonary resuscitation training. Also, less than 30% of the firms indicated that their employees had had prior experience in emergency care upon employment. Only fifteen firms provided inservice training for their personnel in emergency care conducted by a local physician. Twenty-nine firms indicated that experienced personnel held their training sessions; but one-hundred one firms, out of one-hundred fifty-nine, do not provide any

Funeral Homes	124	★
Commerical Ambulances	19	■
Fire Departments	6	◆
Police Departments	5	✪
Hospitals	3	●
Volunteers	2	▭

kind of inservice training for their personnel in emergency care.

In the area of communications, less than 50% of the firms in the State have radio communications with either their base station or hospitals. Those firms who do have some type of communication largely depend on citizen-band type systems. Only 35% of the firms stated they notified the hospital of their impending arrival.

Fees for service ranged from $5.00 a run to $35.00 a run plus extra charges for oxygen, night calls and emergency calls. Seventy-seven of the firms indicated their collection percentage in the past twelve months ranged from 50% to 74%. There are twelve firms in the State operating with a city and/or county franchise and guarantee. The most difficult cost problem indicated by the firms was the cost of equipment. While less than 50% of the firms indicated that personnel was their most difficult cost problem. The most frequent complaint by the ambulance firm was that it was very difficult, and costly, to collect unpaid bills. One-hundred two of the firms indicated that their most serious income problem was inadequate payment by those able, but unwilling to pay.

The accompanying map shows the type and distribution of ambulance companies throughout the State of Arkansas.

Insulin Deficiency in the Rat

R. C. Gross (Stanford Univ School of Medicine, Palo Alto, Calif) and L. A. Carlson

Diabetes 17:353-361 (June) 1968

Nicotinic acid was used to block mobilization of free fatty acids (FFA) from adipose tissue in insulin deficiency produced in rats by administration of guinea pig anti-insulin serum. Animals treated with nicotinic acid had significantly lower plasma FFA, blood betahydroxybutyric acid, and plasma and liver triglycerides compared with animals receiving anti-insulin serum alone for differing lengths of time during 24 hours of treatment. Blood glucose levels were reduced to a lesser degree by nicotinic acid. After 24 hours of treatment there was no significant effect of nicotinic acid, possibly due to a rebound of plasma FFA levels. Increased lipolysis of adipose tissue may contribute significantly to the ketonemia and hyperlipemia of insulin deficiency, but its role is not clear at this time and is probably less important in the hyperglycemia seen in this condition.

Recent Experience With Major Hepatic Resection

J. H. Foster et al (Vanderbilt Univ School of Medicine, Nashville, Tenn)

Ann Surg 167:651-668 (May) 1968

A series of 50 major hepatic resections is reported. Indications for resection were severe liver injuries in 24 patients, tumor in 23 patients, biliary atresia in 2, and an abscess in 1. Of patients in the trauma group, 66% are living and well. This is an improvement over previous experience. There were eight deaths (33%) in emergency resections for trauma, four in the operating room secondary to exsanguinating hemorrhages. Associated injuries of other organs played a role in the mortality rate. Operative mortality in resections for tumor was 23%. Excellent results were obtained in the patients with benign tumors. Three of 14 patients with malignant tumors are long-term survivors. A high incidence of stress ulcers following hepatic resection may be related to fatty metamorphosis of the liver which is known to follow massive hepatic resection.

EDITORIAL

Circulatory Adjustments To Heat

Alfred Kahn, Jr., M. D.

Heat disease in Arkansas is a recurring problem. The three main types are: heat cramps, heat exhaustion, and heat stroke (hyperpyrexia). Fatal heat stroke is, fortunately, rare in Arkansas and this may be the effect of acclimatization.

Rowell, Marx, Bruce, Conn, and Kusumi have reported on the effects of heat on cardiac output, central blood volume and stroke volume in normal men during exercise (Journal of Clinical Investigation, Volume 45, page 1801, November, 1966). The subjects were physically untrained men varying in age from 21 years to 27 years; none were acclimatized to heat. Four different intensities of exercise on a motor driven treadmill were used; the temperature in the environment was at 25.6 degrees C or 43.3 degrees C. Appropriate blood and respiratory gas samples were taken to determine central blood volume, cardiac output and stroke volume.

Previous work had disclosed that there were no decrements in oxygen uptake or increment in blood lactate concentration in unacclimatized men during moderate exercise; 20% of the blood was diverted from the splanchnic circulation.

This earlier work led these investigators to wonder if the redistribution of blood from the splanchnic to the more peripheral circulatory system might not reduce the necessity for an increased cardiac output when the subject worked in a hot environment.

In these studies, cardiac output was affected by only a very small amount by any increase in temperature during work. The central blood volume and the stroke volume were decreased. The circulatory equilibrium after exercise was brought about by an increase in pulse rate and a more rapid circulation time; mild exercise precipitated these changes when the subject was exposed to high environmental temperature as compared to a lower temperature. The authors feel that the "added demands for heat dissipation during moderate to severe exercise of short duration at high ambient temperature, are met by repartitioning cardiac output rather than by increasing it". The blood, so to speak, goes from the "core to the periphery".

Oxygen consumption during exercise was unaffected by temperature.

The authors point out that the limiting factor in man's ability to work at high environmental temperature was the failure of his ability to increase his cardiac output. These studies are of interest to all physicians practicing in the Southern U.S.A. and to plant physicians whose patients are exposed to high environmental temperatures.

MEDICINE IN THE NEWS

Medical School Faculty Staffing Patterns

In 1951, the AAMC in cooperation with the Office of Defense Mobilization prepared a register of medical school faculties in order to provide important statistics about the nation's teaching manpower in medical schools. Sixteen years later the National Institutes of Health sponsored another study, the basic purpose of which was to provide information which would keep pace with expected developments in medical education. The second year of this study reveals little change from the results of last year.* Between 1951 and 1960, total full-time basic science faculties increased 126 per cent from 1,656 to 3,753 persons, and, from 1960 to 1967 the faculty increased by 59 per cent to 5,932. Changes of a similar proportion have occurred in part-time basic science faculties (Table 1). During the same period, medical school enrollment has risen from 26,191 to 33,423. Medical school involvement in research as evidenced by expenditures for sponsored programs has increased by 230 per cent from $74.7 million to $375.1 million.

TABLE 1

PERCENTAGE OF FULL-TIME AND PART-TIME FACULTY IN BASIC SCIENCE AND CLINICAL SCIENCE DEPARTMENTS, 1951, 1960, AND 1967

	1951		1960		1967	
	Number	%	Number	%	Number	%
Basic Science Departments						
Full-time Faculty	1,656	61.1	3,753	73.0	5,932	66.2
Part-time Faculty	1,051	38.9	1,388	27.0	3,025	33.8
Total Basic Sciences	2,707	100.0	5,141	100.0	8,957	100.0
Clinical Science Departments						
Full-time Faculty	2,277	17.7	6,948	23.0	13,490	26.6
Part-time Faculty	10,579	82.3	23,261	77.0	37,258	73.4
Total Clinical Sciences	12,856	100.0	30,209	100.0	50,748	100.0
Basic and Clinical Science Departments						
Full-time Faculty	3,933	25.3	10,701	30.3	19,858	32.9
Part-time Faculty	11,630	74.7	24,649	69.7	40,425	67.1
Total Basic and Clinical Sciences	15,563	100.0	35,350	100.0	60,283	100.0

From 1960-1967, the growth in number of faculty teaching in the clinical sciences has been equally impressive with increases from 6,948 to 13,490 (94 per cent) in full-time clinical faculty members; part-time clinical faculty increased from 23,261 to 37,258—dramatic evidence of the significant contributions part-time faculty members make to medical education. Medical school involvement in research and education has also been accompanied by some growth in clinical activity. Hospital admissions in a sample of 6 medical school teaching hospitals have increased 13 per cent since 1960; the average daily census has increased by 12 per cent from 3,859 to 4,314.** 1967 visits to outpatient departments increased 7 per cent over 1966.

The average staffing pattern of departments detailed in Table 2 has changed little from those of last year.* The only noteworthy shifts are in the number of faculty teaching in the Departments of Pathology, Psychiatry and Surgery.

*Datagrams, Vol. 9, No. 2, Aug. 1967 and Vol. 9, No. 4, Oct. 1967.

**Congressional Testimony, June 1968.

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TABLE 2

FULL-TIME AND PART-TIME FACULTY IN U. S. MEDICAL SCHOOLS, 1966-1967

	Full-Time Faculty			Part-Time Faculty		
BASIC SCIENCES	Average No. Faculty	Total Faculty	Number Departments	Average No. Faculty	Total Faculty	Number Departments
Anatomy	10.4	897	86	4.4	287	65
Biochemistry	11.5	968	84	5.9	267	45
Biostatistics and Mathematical Medicine	3.4	44	13	----	----	----
Genetics	6.5	39	6	5.3	16	3
History of Medicine	2.3	14	6	4.5	9	2
Microbiology	9.0	763	85	4.3	260	60
Pathology	16.4	1,407	86	18.8	1,541	82
Pharmacology	8.4	669	80	4.9	264	54
Physiology	13.5	904	67	5.6	327	58
Other Basic Sciences	6.7	227	34	3.9	54	14
Total Basic Sciences	10.8	5,932	547	7.9	3,025	383
CLINICAL SCIENCES						
Anesthesiology	9.4	413	44	14.3	528	37
Dermatology	3.9	94	24	16.6	465	28
Medicine	42.0	3,610	86	122.0	10,003	82
Neurology	14.1	466	33	13.4	483	36
Obstetrics and Gynecology	7.8	663	84	38.8	3,068	79
Ophthalmology	5.7	232	41	24.4	1,121	46
Orthopedics	4.1	70	17	24.9	648	26
Otolaryngology	5.9	160	27	18.7	597	32
Pediatrics	18.8	1,545	82	44.9	3,594	80
Physical Medicine and Rehabilitation	45.3	317	7	9.3	306	33
Psychiatry	28.6	2,005	70	67.3	5,045	75
Public Health and Preventive Medicine	11.0	750	68	18.8	1,241	66
Radiology	12.8	1,013	79	19.5	1,459	75
Surgery	25.0	2,047	82	108.8	8,700	80
Urology	2.5	47	19	----	----	----
Other Clinical Sciences	4.5	58	13	----	----	----
Total Clinical Sciences	17.4	13,490	776	48.1	37,258	775
Related Health	4.1	354	86	5.5	71	13
Social and Behavioral Sciences	13.7	82	6	10.7	32	3
Total Faculty	14.0	19,858	1,415	34.4	40,425	1,174

Division of Operational Studies

OBITUARY

Dr. F. L. Irby

Dr. F. L. Irby of El Dorado died August 5, 1968. He was born January 25, 1881, in Polkton, North Carolina, the son of J. W. H. and Cleo Beechum Irby. He was a resident of Arkansas for 80 years.

Dr. Irby was a 1908 graduate of the Louisville and Hospital Medical College in Louisville, Kentucky. He was a 33rd Degree Mason and a Shriner, a member of the Arkansas Consistory #1, the Gethsemane Commandry #31, and a 50-year member of the Royal Arch Chapter #114. He had practiced medicine for 60 years and was a Life Member of the Arkansas Medical Society.

Dr. Irby is survived by his widow, Mrs. Estelle Roy Irby.

Dr. Jan W. Crow

Dr. Jan W. Crow of Jacksonville was killed September 2, 1968, in a plane crash near Lake Village.

Dr. Crow was born in Arkadelphia on October 25, 1925. He attended Henderson State Teachers College and was graduated from the University of Arkansas School of Medicine in 1952. He practiced in Rison one year prior to locating in Jacksonville. He was the senior partner in the Crow-Wortham-Moore Clinic at Jacksonville.

Dr. Crow was a veteran of World War II. He was chief of the medical staff at Rebsamen Me-

morial Hospital in Jacksonville, chairman of the Board of Trustees of the First United Methodist Church, a member and former board member of the Jacksonville Chamber of Commerce, a member of the board of the Arkansas Savings and Loan Association and the Commissioner of Little League Baseball.

Survivors include his widow, Mrs. Peal Craig Crow, and two sons.

PERSONAL AND NEWS ITEMS

Dr. Manley Elected

Dr. Robert H. Manley of Clarksville was elected to membership in the American College of Cardiology in July.

Native Arkansan Cited

Dr. Byron T. Johnson, Jr., recently received the Bronze Star for his performance as commander of the 14th Air Force Dispensary at Nha Trang Air Base in Vietnam. Dr. Johnson, a graduate of the Arkansas Medical School who practiced for several years in Southeast Arkansas, is currently a Major in the Air Force and is assigned to Brooks Air Force Base as flight surgeon.

AAGP Names New Officers

The Arkansas Academy of General Practice met in Hot Springs in August. Dr. Alvin Strauss of Little Rock was installed as president during the meeting. Dr. Guy Robinson of Dumas was named president-elect and Dr. W. H. Lane of Dover was elected vice president.

Dr. Ozment is Speaker

"Risk Factors Involved in Heart Attacks" was discussed by Dr. L. V. Ozment of Camden at a recent meeting of the local Lions Club.

Dr. Wood Goes to England

Dr. Thomas O. Wood, Jr., has associated with Dr. Willie Harris for the practice of medicine at England. Dr. Wood is a native of Parkin and a graduate of the University of Arkansas School of Medicine. Prior to locating in England, he practiced in Judsonia.

Dr. Riegler is Commanding Officer

Dr. N. W. Riegler, Jr., of Little Rock, has been appointed Commanding Officer of the Army Hospital Center in Mesquite, Texas. He holds the rank of Colonel and has been Deputy Commander of the Army Reserve Medical Headquarters for ten months, commuting from Little Rock to Mesquite for weekend drills.

Arkansans Attend Meeting

Dr. Keith Klopfenstein of Fort Smith, Dr. James E. Doherty of Little Rock, Dr. Roal Rode of Norway, and Dr. Robert H. Manley of Clarksville, at a meeting of the American College of Cardiology in La Jolla, California.

Dr. Saltzman is Club Advisor

An Emphysema Club was formed in Baxter County in August. Dr. Ben Saltzman of Mountain Home serves as medical advisor to the group.

Hospital Auxiliary Hears Dr. DePalma

Dr. Anthony DePalma of Fayetteville spoke at a recent meeting of the Washington General Hospital Auxiliary on the topic "Plastic Surgery of Interest to Women".

Physician Joins Clinic

Dr. R. Teryl Brooks, Jr., has associated with The Doctors Clinic, P.A., in Pine Bluff for the practice of Urology.

Dr. Wheat is Speaker

Dr. Ed Wheat of Springdale was guest speaker at a meeting of the Fort Smith Christian Business Men's Committee in September.

Dr. Saltzman is Speaker

A program on the Arkansas Children's Colony at Conway was presented by Dr. Ben Saltzman at a meeting of the Baxter General Hospital Auxiliary in September.

Physician Moves to Rison

Dr. Cecil Dickerson, formerly of Prescott, moved to Rison for the practice of medicine.

PROCEEDINGS OF SOCIETIES

Union County Medical Society

The Union County Medical Society recently presented a nursing scholarship to Miss Jane Neal of El Dorado. Miss Neal has worked for two years as a "Candy Striper" at Union Memorial Hospital. Dr. Albert Clowney of El Dorado is chairman of the scholarship committee.

Ouachita County Medical Society

The Ouachita County Medical Society's Committee on Medicine and Religion has taken the lead in establishing closer liaison between physicians and ministers of the Camden area. In September, meetings were held between local physicians, ministers and the local hospital administration. Dr. John Miller of Camden is chairman of the committee.

NEW MEMBERS

Dr. Robert M. Thompson

The Pulaski County Medical Society has recently added the name of DR. ROBERT M. THOMPSON to its membership roll. Dr. Thompson is a native of Franklinton, Louisiana. He attended the Little Rock Junior College from 1951-53 and received a B.S. degree from the University of Arkansas in 1954. In 1959, Dr. Thompson was graduated from the University of Arkansas School of Medicine in Little Rock, Arkansas. He interned at the St. Vincent Infirmary in Little Rock. From 1960 to 1963, he served in the Navy Medical Corps; following his release from the service, he did residency work in psychiatry at the Indiana University Medical Center in Indianapolis, Indiana. From 1965 to 1967 he was in the practice of psychiatry in Columbia, South Carolina. He holds membership in the South

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: 110 RHYTHM: Sinus tachycardia

P-R: .16 sec. QRS: .07 sec. Q-T: .34 sec.

SIGNIFICANT ABNORMALITIES:

Low voltage, right axis deviation with prominent S waves and slight delay right ventricular activation.

INTERPRETATION: Abnormal

COMMENT: An example of one of the types of change found with chronic obstructive lung disease

Carolina District Branch of the American Psychiatric Association.

Dr. Thompson has an office in the University Tower Building in Little Rock.

Dr. Melvin L. Belknap

The Pulaski County Medical Society has announced that DR. MELVIN L. BELKNAP is a new member of that Society.

Dr. Belknap is a native of Ranger, Texas. He served in the United States Army from 1954 to 1958. He received a B.S. degree from the Arkansas State Teachers College in Conway in 1963. He then entered the University of Arkansas School of Medicine and was graduated in 1967. He interned at the St. Vincent Infirmary in Little Rock.

Dr. Belknap is in General Practice with Dr. Amail Chudy and Dr. Bruce E. Schratz at 1801 Maple, North Little Rock.

Dr. G. Morrison Henry

DR. G. MORRISON HENRY has recently been accepted for membership in the Pulaski County Medical Society.

Dr. Henry is a native of Bearden, Arkansas. He attended Henderson State College in Arkadelphia from 1953-1956 and was graduated from the University of Arkansas School of Medicine in Little Rock in 1960. He interned at the Duke University Hospital in Durham, North Carolina. From 1961 to 1962 he was in residency training in Internal Medicine at the Duke University Hospital in Durham, North Carolina. Dr. Henry served in the United States Air Force from 1962 to 1965. Following his military service, Dr. Henry completed his residency at the University of Arkansas Medical Center.

Dr. Henry is associated with the Little Rock Diagnostic Clinic with offices at 400 Pershing Boulevard, North Little Rock and 900 North University in Little Rock and specializes in Internal Medicine and Neurology.

Dr. Gathel O. Runnels

A new member of the Pulaski County Medical Society is DR. GATHEL O. RUNNELS.

Dr. Runnels is a native of Mississippi. He attended the East Central Junior College in Decatur, Mississippi. He was graduated from the Medical College of Alabama in Birmingham, Alabama, in 1953. He interned at the Mercy Hospital in Vicksburg, Mississippi, and completed a residency in psychiatry at the Arkansas State Hospital in Little Rock.

Dr. Runnels is a psychiatrist with the Arkansas State Hospital in Little Rock.

Dr. John D. Pike

DR. JOHN D. PIKE is a new member of the Pulaski County Medical Society.

He is a native of Little Rock, Arkansas. He received an A.B. degree from Hendrix College in Conway. He was graduated from the Vanderbilt University School of Medicine in Nashville, Tennessee in 1962. Dr. Runnels interned at the University of Iowa Hospital, Iowa City, Iowa, from 1962-63. He completed a residency at the University of Iowa Hospital in General Surgery. He is certified by the American Board of Surgery. Prior to coming to Arkansas, Dr. Pike was in practice at the University of Iowa Hospital.

Dr. Pike is associated with Dr. Robert E. Richardson in the practice of General Surgery at 500 South University.

Dr. Ben B. Cabell

DR. BEN B. CABELL has recently been accepted for membership in the Sebastian County Medical Society.

He is a native of Hawaii. He received his B.S. degree from the University of the South, Sewanee, Tennessee. Dr. Cabell was graduated from the Tulane University School of Medicine in 1959. He interned at the McLeod Infirmary, Florence, South Carolina from 1959 to 1960. He served in the United States Navy from 1960 to 1965. Following his release from the service, he completed a residency at the University of Arkanass Medical Center in Pediatrics. He is a clinical instructor in Pediatrics at the University Medical Center.

Dr. Cabell is in the practice of Pediatrics at 312 South 16th Street, Fort Smith, Arkansas.

RESOLUTIONS

WHEREAS, an all-wise Providence has called Dr. Charles T. Chamberlain from our midst, and

WHEREAS, Dr. Chamberlain had faithfully served his patients in the community at large throughout his many years of medical practice, and

WHEREAS, Dr. Chamberlain, during his years of practice reflected throughout his entire medical career the highest ideals of the profession, and

WHEREAS, his passing leaves his medical colleagues, his patients and the community with the great loss of his friendliness, and his professional ability,

THEREFORE, BE IT RESOLVED, that the members of the Sebastian County Medical Society in regular session on September 10, 1968, formally record their sorrow by this resolution, and

BE IT FURTHER RESOLVED, that a copy of this resolution be spread on the minutes of the Sebastian County Medical Society and that a copy be furnished to the bereaved family and that it be published in the Journal of the Arkansas Medical Society.

BOOK REVIEWS

SYSTEMIC MYCOSES, Various Authors, Edited by G.E.W. Wolstenholme and Ruth Porter, illustrated, pp. 287, published by Little, Brown, and Company, Boston, 1968.

GROWTH OF THE NERVOUS SYSTEM, Various Authors, Edited by G.E.W. Wolstenholme and Maeve O'Connor, illustrated, pp. 295, published by Little, Brown, and Company, Boston, 1968.

SCHOOL HEALTH SERVICES, Second Edition, Various Authors, Edited by Charles C. Wilson, M. D., illustrated, pp. 414, published by National Education Association and American Medical Association, Washington, 1964.

HEALTHFUL SCHOOL LIVING, Various Authors, Edited by Charles C. Wilson, M. D., illustrated, pp. 323, published by the National Education Association and American Medical Association, Washington, 1957.

Cryoglobulinemia Infectious Mononucleosis: Quantitation and Characterization of Cryoproteins

M. E. Kaplan (216 S Kingshighway, St. Louis)
J Lab Clin Med 71:754-765 (May) 1968

Cryoprecipitin was observed in sera from 20 to 21 consecutive patients hospitalized for infectious mononucleosis. Its intensity could be correlated with serum γM concentration but not with splenomegaly, absolute lymphocyte count, or heterophil antibody titer. During convalescence, cryoprotein levels gradually returned to normal over a six- to ten-week period. All cryoprotein contained γM and γG immunoglobulins, the former predominating. Additional α_2-contituents were demonstrated in 17 of 21 cryoproteins; in one instance this component was identified as α_2-macroglobulin. Individual cryoproteins manifested a variety of serological properties, ie, heterophil, cold agglutinin, rheumatoid factor, and cardiolipin reactivities (the latter two frequently escaping detection in the original serum).

Metabolic Effects of Nicotinic Acid in Acute Alveolar Cells of Sputum in Pulmonary Carcinoma

F. Masin and M. Masin (317 W. Pueblo St, Santa Barbara, Calif)

Cancer 21:1042-1051 (June) 1968

This study was carried out to test the claims that increased frequencies of alveolar cells—lipophages—in sputum samplings are of diagnostic importance in incipient or established lung carcinoma. A group of 1,033 patients with chronic respiratory disease (nonsmokers and smokers) and a group of 77 patients with carcinoma of the lung were compared with several population samples of 779 healthy nonsmokers and smokers. Differential cells counts and cytological classification were obtained in 2,159 concentrated sputum specimens. Proportions of alveolar and bronchial cells were analyzed statistically in pooled and individual cytological classes.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

ARTERIAL-BLOOD GAS TENSION IN ASTHMA

In a study of 101 patients, it was found that the most characteristic blood gas pattern in acute asthmatic attacks is hypoxemia associated with respiratory alkalosis. Alterations in ventilation-perfusion ratios accounted for the lowered oxygen tensions.

Because changes in blood gas tensions in patients with asthma have been difficult to interpret, a study was undertaken to evaluate abnormalities in blood gas values in asthma patients in relation to the degree and duration of airway obstruction.

By means of pulmonary function tests and blood analyses, data were collected from 101 patients during asthmatic attacks. The patients (73 women, 28 men from 14 to 45 years old) had a history of episodic attacks of wheezing associated with a known allergen or irritant inhalant and a personal and family background of hypersensitivity. No patient with a history of chronic productive cough and infiltration on roentgenogram was admitted to the study.

Forced vital capacities and timed expiratory volume were measured. The forced expiratory volume in one second (FEV_1) was expressed as a percentage of predicted normal value based on age, sex, and height. Patients with FEV_1 less than 25 per cent of predicted norms were considered to have severe airway obstruction; those with values of 26 to 50 per cent, moderate; and those with values of 51 to 85, mild.

Arterial blood samples were collected anaerobically; arterial carbon dioxide tension, oxygen tension, and pH were measured, and bicarbonate concentrations were calculated.

Inequalities in ventilation-perfusion relations were assessed by determinations of ratios of physiologic dead space to tidal volume and alveolar-arterial gradients for oxygen. Single-breath diffusion studies for carbon monoxide were performed in each subject, and the results expressed as percentage of predicted norms. An X-ray film of the chest was obtained either immediately before or after the pulmonary function tests.

Of the 101 patients, 91 had hypoxemia. The mean arterial oxygen tenison was 69.4 mm. of mercury, with a standard deviation of 10.4 mm.

The mean arterial pH was 7.44, with a standard deviation of 0.01. Respiratory alkalosis was present in 73 and acidosis in 7, while 21 had a normal pH. No patients had metabolic acidosis. Hypocarbia was encountered in 74 patients; normocarbia in 16; and hypercarbia in 11. The highest carbon dioxide tension was 71 mm. of mercury. The mean bicarbonate ion concentration was 23.0.

There was no evidence of a dependent relationship between the patient's age and disease history and the degree of airway obstruction or the alterations in arterial-blood values.

The mean FEV_1 was 28.2 per cent of predicted values. According to degree of airway obstruction, 54 patients were classified as having severe, 36 as moderate, and 11 as mild.

Patients with mild obstruction had alveolar hyperventilation with hypocarbia and respiratory alkalosis, normal bicarbonate concentrations, and mild hpyoxemia. Those with moderate obstruction had lower oxygen tensions, higher partial pressures of carbon dioxide, and lower pH. Severe degrees of airway resistance were characterized by a decrease in alveolar ventilation, with both the mean pH and carbon dioxide tensions returning to normal as oxygen tension fell further. Hypercapnia was observed only in extreme degrees of airway obstruction.

PRINCIPAL ABNORMALITY

Hypoxemia associated with repiratory alkalosis was the characteristic blood gas pattern in the patients during an acute respiratory alkalosis. Hypoxemia was found in some degree at all levels of airway obstruction. Ventilatory functions indi-

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E. R. McFadden, Jr., M.D., and Harold A. Lyons, M.D. *The New England Journal of Medicine*, May 9, 1968.

cated moderate degrees of airway obstruction.

From these data it would seem that most asthmatic attacks are associated with alveolar hyperventilation and that hypercapnia seldom occurs prior to extreme degrees of obstruction.

When airway resistance is low, the tendency is to overcompensate for the obstruction by increasing the rate of breathing. This elevates the minute and alveolar ventilations. As the bronchospasm reaches the moderate range, further increases in minute ventilation result in only a small percentage rise in alveolar ventilation, which then remains relatively fixed until the FEV_1 drops to 25 per cent of predicted value. Fall in tidal volume at this point causes both minute and alveolar ventilation to drop. When the FEV_1 is 15 per cent of predicted value, carbon dioxide retention begins to occur.

The reason for the discrepancy between levels of alveolar and minute ventilations achieved appears to be that the inspired air is directed preferentially toward areas in the lung with the lowest flow resistance. Although those areas occupy only 25 to 40 per cent of the lung volume, they receive 80 to 90 per cent of the incoming air and appear to ventilate at twice the rate of the rest of the lung.

HYPERVENTILATED UNITS

Thus, a relatively small, but controlling, number of alveolar units are hyperventilating in relation to their perfusion. This gives rise to hypocarbia, a large physiologic dead space, and a ventilation-perfusion ratio in excess of normal. The remaining portion of the lung is poorly ventilated and hyperfused, with a depressed ventilation-perfusion ratio.

When there is overall alveolar hypoventilation with hypercapnia, the shift in total lung ventilation-perfusion ratio is toward values less than one; and, conversely, when the arterial carbon dioxide tension is low, as in the patients in the present study, the net ventilation-perfusion ratio is higher than one.

In the latter circumstance hypoxemia is still present because blood leaving the poorly ventilated alveolar units is unsaturated. Blood leaving the hyperventilated alveoli may have partial pressures of oxygen in excess of 110 mm. of mercury, with 100 per cent oxyhemoglobin saturation; but the weighted combination of the streams from each area yields a low arterial oxygen tension and a large alveolar-arterial oxygen gradient.

At severe degrees of airway obstruction, overall alveolar hypoventilation may occur, and venous admixture may be found. The association of significant venous admixture with high airflow resistance suggests that in the patients in the study the airways leading to some alveolar units were totally occluded and yet continued to be perfused. Areas of atelectasis were not found on X-ray studies of the chest, indicating that the areas involved were small and scattered throughout the lung.

Physical Exercise and Alcohol Metabloism in Man

G. L. S. Pawan, Dept of Medicine, Middlesex Hosp Medical School, London)

Nature 218:966-967 (June 8) 1968

Experiments were carried out to investigate the effect of fairly intensive physical exercise on the rate of metabolism of a standard dose of alcohol administered to healthy male volunteers. After an overnight fast (12 to 14 hours) ten normal well-nourished men, ages 20 to 47 years, who were moderate occasional drinkers, were given 0.5 gm of ethanol/kg body weight, at intervals of three to five days. Venous blood and urine samples were obtained at half-hourly intervals for triplicate analyses of ethanol and water. Ethanol values in plasma and urine were relatively constant. The experiment was repeated, but one hour after the dose of alcohol the men indulged in fairly intensive physical exercise during a 25-minute period. Despite the possible loss of ethanol from the body through the lungs and skin during the period of exercise, the slopes of the ethanol curves were not significantly different from control values. Fairly intensive physical exercise had no effect on the rate of alcohol metabolism in the men participating in this experiment.

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Figure 1(A)

Basal cell carcinoma recurrent after one surgical excision. B, granulations after chemosurgical excision and after separation of the final layer of fixed tissue ten days later. C, healed lesion four months later.

Figure 1(B)

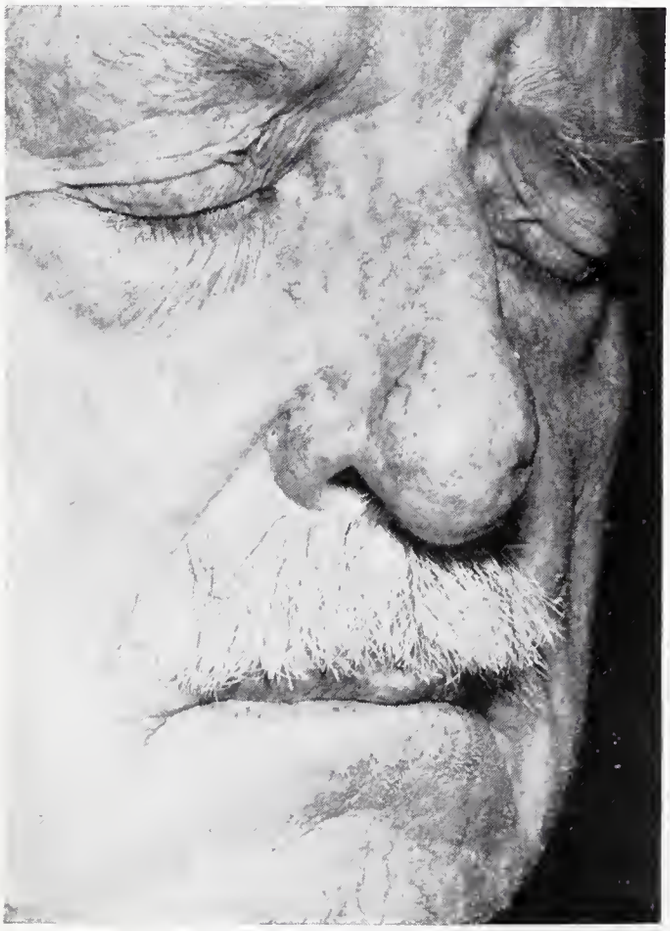

Figure 1(C)

of cotton and this was covered with an overlapping occlusive dressing of vaseline-spread cotton with a gauze backing. This was taped in place. The patient was given a prescription which contained aspirin and 30 mg. of codeine to be taken as often as every three hours if needed for pain.

After 24 hours, a layer of fixed tissue was excised with a scalpel. There was no pain or bleeding from this excision because the incisions were through fixed tissue just short of the level of viable tissue. Very little cancer tissue could be seen grossly so the entire area was examined mi-

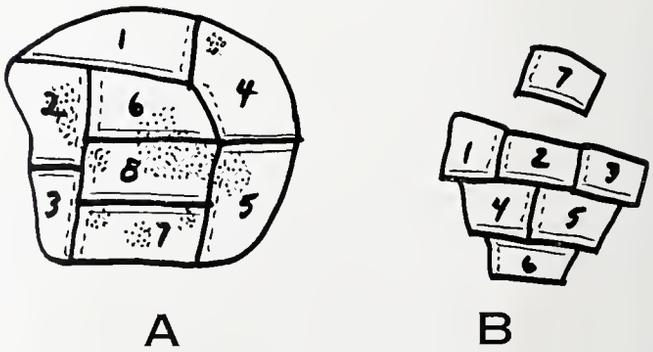

Figure 2

Map showing source of specimens after 24 hours. Stippling indicates the areas of cancer as located by microscopic examination of the frozen sections cut through the undersurface of each specimen. B, map of tissues removed at 48 hours showing no remaining areas of cancer.

croscopically by means of eight frozen sections (Fig. 2A). Several irregular areas of basal cell carcinoma were observed as the microscopic slides were scanned, and these areas were designated by red markings on a map which had been drawn on a pad of paper as the specimens were excised.

Reapplication of the fixative was limited to the areas demonstrated to contain cancer. On the next day another layer was excised from the treated areas and upon scanning under the microscope this layer was found to be free of cancer (Fig. 2B). The lesion was covered with vaseline gauze and a cotton dressing.

In 10 days the patient returned and the final layer of fixed tissue was dissected off with a sharp-pointed scissors. Granulations covered the wound (Fig. 1B). There was no fistula though several hairs of the vestibule were pulled through because their follicles had been destroyed. The patient was instructed to apply mercurochrome and a dry prepared dressing until the wound healed in about three weeks. When he returned for a check-up in four months the wound was well healed (Fig. 1C). There was no recurrence when the patient died of other causes after four and one-half years.

Although the entire cancerous mass was removed chemosurgically in this case, there are some cases in which the tumor mass is so bulky that initial surgical excision under local anesthesia is expeditious. After excision, hemostasis is secured by the rapid application of dichloracetic acid to the saucerized wound. The zinc chloride fixative then is applied and the microscopically guided chemosurgical excisions are carried out until a completely cancer-free level is reached.

INDICATIONS

The indications for chemosurgery include cancers of the various histopathologic types affecting the skin and other accessible structures including cavities sufficiently accessible for the stage-by-stage procedure. By far the most common groups of neoplasm for which chemosurgery is used are basal and squamous cell carcinomas of the face.

Cancer of the Nose.—As illustrated in figure 1, carcinoma of the bridge and ala can be removed chemosurgically without appreciable defect if the neoplasm has not invaded through the full thickness. However, basal cell carcinomas arising on the nasal ala and the nasolabial fold often are of the ingrowing type which may show nothing but a flat or depressed ulcer and yet extend quite deeply into the ala. The unpredictability of this extension is the chief reason for the superior results obtained with chemosurgery not only from the standpoint of reliability but also from the standpoint of conservatism. The microscopic control makes it feasible to avoid a niche if the cancer does not extend through the entire thickness of the ala, but if it does go through the full thickness, the niche can be kept at a minimum making it relatively easy to repair the defect by the use of a composite graft from the lobe of the ear.

Basal cell carcinomas in the nasolabial fold often exhibit deep extension which may reach the level of the maxillary bone. Assurance of complete removal of these deep downgrowths is best provided by the misroscopic guidance of the chemosurgical method.

Epitheliomas of the root of the nose may extend deeply to involve the periosteum of the nasal bone, and this necessitates the removal of a thin layer of bone. The fixed portion of the bone becomes demarcated in three weeks and can be lifted off with a rongeur or chisel. If the inner canthus is invaded, the cancer can be followed out accurately with little danger of damage to the eye unless the cancer actually invades the sclera.

Cancers of the nasal septum may be followed up as far as necessary and the rest of the septum preserved to provide support for the nose. Rarely does the neoplasm become so extensive that a defect of the tip and bridge is produced.

Cancer of the Ears.—Many cancers arise on the helix, and if these are not deeply invasive, little or no defect in the outline of the ear is produced. However, a deeply invasive epithelioma may necessitate the removal of the full thickness with a resultant niche. This often can be made unnoticeable by removing some of the helix above and below the defect in such a way that fairly normal contours are produced. Such an ear may be smaller than the opposite ear, but since both ears are usually not seen at once, the cosmetic result is quite acceptable. In some cases the niche may be repaired by simply closing the defect after excising a wedge. Only rarely are more complicated repairs needed.

Cancers of the concha and ear canal are amenable to chemosurgical treatment. Extensions as deep as the middle ear may be removed layer by

layer by the use of slender instruments and a good headlight.

Cancers of the postauricular fold often extend most deeply into the sulcus, but they rarely extend through the ear and the wounds heal with barely visible scars.

Cancers of the Eyelids.—The common basal cell carcinoma of the lid margin usually can be excised under complete microscopic control by excising layers of fresh tissue and having frozen sections made after warming the specimens for a few minutes in formalin to produce fixation in vitro. The source of the specimens are recorded on a map the same as when the tissues have been fixed in situ. After removal of each layer the surface is cauterized wtih dichloracetic acid not only for hemostasis but also to prevent spread of cancer cells over the incised surface. An eye clamp is used to hold the lid, and to provide hemostasis during excision of the specimens. Local anesthesia with 1% lidocaine by injection and with 2% cocaine by instillation in the eye precedes each excison. If the cancer is found to extend too deeply into the orbit or into the canthi the chemosurgical method can be resorted to at any point. This use of fresh surgical specimens also is applicable to lesions on the margin of the upper lid.

Following removal of cancers of the lid margins the defects are permitted to heal spontaneously. The tissues in the base of a considerable niche in the lower eyelid will pull up into normal position in a few weeks with surprisingly little defect. Ectropion is prevented by removing approximately equal amounts of tissue on the conjunctival and cutaneous sides of the lid.

Cancers of the medial and lateral canthi are best removed chemosurgically. Even though quite extensive, the cancers usually can be followed back into the orbit and into the eyelids without damage to the eye. Only if the sclera of the eye is deeply invaded is there a need for removal of the eye.

Cancers of the Non-Orificial Areas.—Facial cancers of other than orificial structures are relatively easily handled chemosurgically. A common pattern of spread of basal cell cancers of the forehead, temples and scalp is peripheral invasion in the dermis. This dermal spread often extends for a centimeter or more into the apparently normal skin around the visible and palpable mass.

Basal cell cancers of the skin of the upper lip frequently extend down into the red border of the lip. These lesions usually heal with a vertical linear scar. If extensive, the mucosa of the lip may be pulled up enough to require a simple repair.

Cancers over the parotid gland may extend deeply into the gland and jeopardize the branches of the facial nerve, but the conservatism made possible by the microscopic control avoids or minimizes the facial paralysis. The same advantageous combination of reliability with conservatism also applies in cases in which the carcinoma has originated in the parotid salivary gland.

Cancers which invade deeply to the level of the large vessels of the neck may be removed chemosurgically if the patient is young enough to withstand ligation of the common carotid artery.

Cancer of the Lips.—Squamous cell carcinoma of the vermilion border of the lower lip, and also of the upper lip and commissures, are amenable to chemosurgical treatment. In most cases the main mass of the cancer initially is excised under local anesthesia. Dichloracetic acid is applied to the saucerized wound for hemostasis and then the zinc chloride fixative is applied for an interval of from 4 to 24 hours. A layer of fixed tissue then is excised and examined microscopically. In many instances the procedure is carried out on an outpatient basis and is completed in one or two days. If the labial arteries pulsate strongly, suture-ligatures are placed around both ends of the vessel to prevent hemorrhage during separation of the final layer. The patient returns in five days for removal of the final layer which usually has demarcated by that time. The regional nodes are removed by a standard neck dissection if metastatic nodes are present, but as a rule "prophylactic" neck dissections are not recommended.

Cancer of the Extremities and Trunk.—Squamous, and occasionally basal cell carcinomas, may arise on the hands and fingers of physicians and dentists who are exposed to x-ray in the course of their work. The conservatism which can be safely practiced with the chemosurgical technique is particularly valuable in the case of these professional people whose hands are essential in their work. Cancers which involve the bottom of the feet may be removed chemosurgically and the wounds permitted to heal with the formation of healthy scars which permit weight bearing without discomfort.

Cancers of the trunk most commonly are of the superficial basal cell variety and, unless they show

evidence of deep invasion, they need not be removed chemosurgically. It is sufficient to excise them superficially, cauterize the saucerized wound with dichloracetic acid and examine the wound surface carefully with a magnifying loupe. If any downgrowths are present they are visible as whitish areas against a grayish-white background. These downgrowths are dug out or excised and the process repeated until no visible cancer is left. However, if more highly invasive cancer is found, chemosurgical removal with full microscopic control is carried out.

Cancer of the Penis.—The microscopic control provided by the chemosurgical technique permits the removal of most cancers of the penis without sacrifice of the organ. Rarely, have I found evidence of seeding along the lymphatics of the penis so amputation is not indicated unless the organ is completely invaded by the cancer. The regional nodes are removed by a groin dissection if they are clinically involved or if the primary is of such a large size and grade of malignancy that metastasis is strongly suspected.

Cancer of the Vulva.—Vulvar carcinomas often extend rather irregularly, and the microscopic guidance provided by the chemosurgical method permits the greatest assurance of complete removal. Sometimes extensions are followed up the wall of the vagina or in the perineum almost to the anus. Other extensions have been followed up the urethra by placing an indwelling catheter and proceeding as far up as necessary. The lesions heal rapidly and well. No instances of stenosis of the uretha have occurred.

Melanoma.—Cutaneous melanoma may be removed chemosurgically, but because of the predilection for metastasis from these lesions two precautions are indicated; first, the main mass is never removed surgically prior to chemosurgical treatment and second, after a melanoma-free plane has been reached a further wide zone is removed from the periphery to reduce the chance of leaving peripheral satellite deposits in the skin lymphatics.

COMMENTS

Unprecedented reliability is the chief advantage of the chemosurgical method. This reliability is attested to by the end results in a consecutive series of 6568 cases of basal and squamous cell carcinomas in which the five-year cure rate was 97.2 per cent as compared with the next best rate of 87.6 per cent for a similar series reported from the Radiumhemmet of Stockholm, Sweden for the period 1921-1952. Similarly, the five-year rate of cure in a series of 4858 cases of basal cell carcinoma treated chemosurgically was 99.1 per cent as compared with the Radiumhemmet rate of 88.2 per cent. In a series of 1710 cases of squamous cell carcinoma of the skin, chemosurgery yielded a five-year cure rate of 91.5 per cent as compared with the Radiumhemmet rate of 65.9 per cent. Correspondingly high rates of cure were attained with squamous cell carcinoma of the vermilion portions of the lips (951 cases with 92.6 per cent five-year cure) and with cutaneous melanoma (66 cases with 47.5 per cent five-year cure).

Conservatism also is an important advantage of chemosurgery. Many cancers involve portions of the face and the importance of saving tissues in this area is obvious, especially when the eyes, the facial nerve and other vital structures are in jeopardy.

Both the reliability and the conservatism are the direct result of the complete microscopic control of excision provided by the chemosurgical method because it is this control that permits the selective removal of the "silent" outgrowths of slender strands and thin sheets of cancer cells wherever they may go. These unpredictable extensions may follow specific tissue structures such as the dermis, fascial planes, periosteum, perichondrium, nerve sheaths, lymphatic vessels and plexuses, blood vessels and embryologic fusion planes. However, in many cases the outgrowths follow no specific pathway but nonetheless they extend in an irregular and unpredictable manner because of the countless variations in the mechanical and nutritive conditions affecting the spread of cancer cells through the tissues.

Low operative mortality is an advantage that results from the lack of need for general anesthesia, the freedom from infection and the greater degree of conservatism that is safely practiced because of the microscopic control. The mortality rate was less than a third of one percent in the series of patients with epitheliomas.

Excellent healing and lack of late ulceration and cancerization in postchemosurgical scars are the results of the lack of damage to the tissues just beyond the furthest extent of the necrosis produced by the fixative.

Extension of operability to many patients with cancers too extensive for hope of cure with other

modalities is an important advantage of chemosurgery. In the present series, a third of the cancers had been recurrent following some kind of surgical or radiation therapy and yet the five-year cure rate for the entire series was 97.7 per cent. At this point I should like to make a plea for early recognition of failure with other modalities so that the patients can be referred for chemosurgical care before the cancer has become far advanced.

In cases in which the cancer is extensive and is in a sensitive area the pain during the period of fixation may be enough to require morphine for control. Moreover, these extensive lesions require much difficult, time-consuming work because of the large number of sections that may be needed. However, since it is in just such cases that chemosurgery is most desperately needed, these disadvantageous features do not seem excessively important.

Although the concept of using frozen sections to provide guidance of excision is simple, the actual practice of the chemosurgical method is more complex. The interpretation of the sections, the dosage of the fixative, the excision of the specimens under adverse conditions are only a few of the aspects of the technique that must be mastered in order to obtain optimal results. Therefore, the physician who plans to use the method should receive training from someone actively using the method, and he should plan to use the method steadily to maintain his skills.

A specially trained technician and facilities for making frozen sections in or close to the chemosurgery clinic are necessary for the most effective use of the method. Most pathology laboratories are not geared to provide this service so a separate setup is advisable.

At present, over 50 physicians are actively using the chemosurgical technique, but many areas of the country still do not have this method available. Since this modality is an important addition to our armamentarium against external cancer, personnel and facilities for its use should be available in every large center of population.

SUMMARY AND CONCLUSIONS

Chemosurgery is a method by which cancer of the skin can be excised under complete microscopic control by the systematic use of frozen sections. This control makes possible the selective removal of the "silent" outgrowths which commonly extend for some distance from the clinically detectable mass. Chemical fixation in situ facilitates the removal of layers of tissue for microscopic scanning.

Advantages of chemosurgery are (1) unprecedented reliability, (2) conservatism, (3) low operative mortality, (4) good healing with no late adverse sequellae and (5) extension of operability to many patients with cancers too extensive for hope of cure with other methods.

Physicians trained to use the method and the necessary special technical personnel and facilities should be available in every large center of population.

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Nursing Home Management of Behavior Problems in the Geriatric

James D. Wilson, M.D. and Eulene Mathis, R.N.

The greater number of aged persons in nursing homes and related facilities suffer long-term illnesses which are usually irreversible. Those with chronic brain syndrome alone, for example, occupy approximately two-thirds of the more than 700,000 beds available in these facilities.[1,2] Management of this type of patient, therefore, is a problem of sizable proportions. The disabilities associated with these chronic disease processes (e.g. impaired memory, emotional instability, and the inability to make simple judgments and decisions) engender abnormal behavior patterns in the elderly patient which, in turn, interfere with programs that have been set up for his effective care and supervision. Often this abnormal behavior is exacerbated by the presence of associated psychotic or psychoneurotic disorders.

Admission to a nursing home can be a grim occasion for the elderly patient. The transfer from familiar to alien surroundings, coupled with the belief that family and friends have abandoned him and that his independence and self-respect are lost, may precipitate a traumatic reaction. In the case of the chronically ill patient who somehow realizes that he has been relegated until death to this strange place, the expectation can be unbearable. In an attempt to deny or retreat from a seemingly inexorable course of events, such patients may become either hostile or apathetic and withdrawn. They are frequently nervous, agitated, or depressed and either passively or aggressively uncooperative.

A peaceful and reassuring environment has a favorable influence on the prognosis of the institutionalized patient. Disturbing and unmanageable behavior can readily disrupt the best made plans for effective patient care. Alleviation of such manifestations and stabilization of the patient are, therefore, primary requisites in the effective administration of a nursing home. An overall therapeutic program cannot be properly implemented until the patient's overt behavioral symptoms have been properly controlled. The achievement of these goals has been considerably enhanced by the use of tranquiliz-

*Mellaril, Sandoz Pharmaceuticals
+Southwest Homes, Inc., Little Rock, Arkansas

Table I

Characteristics of Patient Population

Diagnosis	Major target symptoms before treatment	Number of patients	Treatment with Thioridazine	Dosage (mg./day)	Duration (months)
Chronic Brain Syndrone	Uncooperativeness, Hostility, Withdrawal, Nervousness	30	Range: Median:	25-300 75	0.5-13 4.5
Schizophrenia	Uncooperativeness, Hostility, Withdrawal	19	Range: Median:	30-300 75	2-13 4
Senile Arteriosclerosis	Nervousness, Uncooperativeness	8	Range: Median:	25-150 75	2-9 5
Chronic Brain Syndrome with Schizophrenia	Uncooperativeness, Hostility, Nervousness	3		50-150	5-8
Chronic Brain Syndrome with Senile Arteriosclerosis	Hostility	2		30-150	8-15
Mental Retardation	Uncooperativeness, Hostility, Nervousness, Loudness, Hyperactivity	2		150 (each patient)	6-8

ing drug therapy, specifically with the phenothiazines. One of these, thioridazine,* has been found especially useful in aged persons because of a lesser tendency to produce serious side effects at therapeutic doses.[3-6] Our experience with this drug is reported here in a review of a series of 64 patients recently treated at this nursing home.+

Materials and Methods

The patients consisted of 35 males and 29 females whose ages ranged from 43 to 94 years (median: 72 years). Diagnoses revealed that all were suffering from chronic disease processes. In order of prevalence, these were: chronic brain syndrome (with and without associated mental disorder), schizophrenia, "senile" arteriosclerosis, and mental retardation. Upon admission, the patients exhibited characteristic behavioral symptoms. They were generally uncooperative, hostile, withdrawn, and nervous; some were restless, agitated, noisy, demanding, and suspicious. The diagnostic groupings and their predominant target symptoms are described in Table I.

Treatment with thioridazine was instituted for each patient. Initial dosages, selected according to the individual's needs, ranged from 25 to 300 mg. per day (median: 75 mg/day). Dosages were adjusted according to the response shown by each patient, but maintenance and starting doses remained the same for the majority. Duration of treatment ranged from 2 weeks to 16 months (average: 5.5 months; median: 5 months). Many patients also received medication specifically indicated for their physical disorders: (e.g. cardiac glycosides, diuretics, anticonvulsants).

Response to treatment was evaluated for each patient individually on the basis of a comparison of his pre- and post-treatment condition and behavioral manifestations. Results were rated as "Excellent, Good, Fair, None, or Worse," and were based primarily upon the observations of the nursing staff and physician.

Results

As shown in Table IIB, the disruptive behavior patterns of 57 patients (89%) were noticeably improved as a result of treatment with thioridazine. Results were "Excellent" in 2 patients and "Good" in 55. Five patients (8%) showed only slight or "Fair" progress. No response was observed in 1 patient, and the symptomatology of one other seemed to be aggravated by treatment.

Table II
Results of Treatment
with Thioridazine

A. *By Diagnoses*

	Results	
	Rating*	Number of patients
Chronic Brain Syndrome	"Excellent"	1
	"Good"	27
	"Fair"	2††
Schizophrenia	"Good"	16
	"Fair"	2††
	"None"	1
Senile Arteriosclerosis	"Good"	6
	"Fair"	1†
	"Worse"	1††
Chronic Brain Syndrome with Schizophrenia	"Good"	3
Chronic Brain Syndrome with Senile Arteriosclerosis	"Good"	2
Mental Retardation	"Excellent"	1
	"Good"	1

B. *Overall Results*

Overall Results	"Excellent"	2 patients
	"Good"	55
	"Fair"	5
	"None"	1
	"Worse"	1

* "Excellent" = Very cooperative; more sociable; desired to help staff with other patients.
"Good" = Cooperative; more sociable.
"Fair" = Somewhat more cooperative; withdrawal usually persisted.
"None" = No change seen.
"Worse" = Nervousness was increased.

† Initially, response was rated as "Worse;" however, as treatment continued, patient showed improvement which was rated "Fair" after 3 months on the drug.

†† For one patient in each category indicated (total: 3 patients), treatment was discontinued; see text for details.

Results according to diagnostic categories are listed in Table IIA. Comparison of the two largest subgroups indicates that those with chronic brain syndrome, with or without associated mental disorder, responded better (94% rated at least "Good") to treatment than the schizophrenic patients (84% rated at least "Good"). Although the number of patients with "senile" arteriosclerosis (8) is too small for meaningful comparison, their response to treatment showed improvement of a lesser degree, in that 6 (75%) were rated at "Good," 1 "Fair" and 1 "Worse." Both mentally deficient patients responded well; one was rated "Good" and the

other "Excellent."

In general, response to treatment was characterized by a reversal of hostile, uncooperative, and self-concerned attitudes. Every patient who showed a response to treatment, whether slight or great, became cooperative and more sociable rather than being resistant and withdrawn or belligerent as noted before receiving thioridazine. "Fair results" was the rating applied to those patients who improved in certain symptom areas (e.g. hostility, uncooperativeness) and slightly or not at all in others (e.g. withdrawal, nervousness). "Good results" described a pronounced behavioral improvement; that is, from hostility and contrariness to calm, friendly, and cooperative behavior. Many showed interest in other people for the first time, visiting with fellow patients in their rooms and in the recreation area. Patients whose response was judged to be "Excellent" exhibited changes in behavior similar in kind and degree to those denoting a "Good" response. The notable difference was, however, that those rated as "Excellent" showed an overt desire to be helpful, specifically by aiding the staff in small tasks with other patients.

Occasional periods of drowsiness were observed in 3 patients early during the course of treatment, but these subsided as therapy was continued. Two patients became drowsy after 2 months and 8 months of treatment, respectively. The former patient was showing very little response to the drug, so that treatment was discontinued. Soon after starting on thioridazine, one patient ("senile" arteriosclerosis) showed increased nervousness, but when the dosage was reduced (from 75 to 50 mg/day) she began to improve. The drug was discontinued in another woman who was suffering from "senile" arteriosclerosis; prior to treatment she was nervous and restless and these symptoms seemed to be aggravated during 4 months on the drug. Treatment was also terminated for a female patient with chronic brain syndrome because her single symptom (withdrawal) showed little improvement after 3 months of treatment.

Discussion

Institutionalized elderly patients with chronic, irreversible illness require continued supervision and protection. There is little hope for a return to family and community and such persons may reside in nursing homes for the remainder of their lives. The main goal of care for these aged patients should be directed towards making them as comfortable as possible and to institute an overall program of treatment which will encompass their physical as well as their emotional needs.

Environment is a critical factor. The "waiting-to-die syndrome" [3] characteristic of the institutionalized and chronically ill is in itself a degenerative condition. Unless this attitude can be replaced with one which supports the patient's self-esteem, his mental and physical functioning will deteriorate rapidly. Care, therefore, should be based upon an informal, but ever pervasive, form of psychotherapy. The patient should be made to feel that the home is not a threatening place and that, by interaction with other patients and the staff, life can still be interesting and worthwhile. Reassurance and unfailing emotional support on the part of the staff can produce rewarding results. Drug therapy aimed towards relieving disruptive target symptoms is in many cases an essential adjunct in programs which have the patient's management and resocialization as a main goal.

As demonstrated in this review, our experience with thioridazine has been uniformly favorable. The great majority of patients in this 127-bed facility suffer long-term and irreversible illness, notably chronic brain syndrome, chronic schizophrenia, mental deficiency, and "senility." Behavioral symptoms presented by these patients include agitation, confusion, anxiety, and withdrawal. They are generally hostile and may have poor personal hygiene and eating and sleeping habits.

Treatment with thioridazine resulted in effective alleviation of individual target symptoms in many of our patients, and thereby, produced marked improvement in behavior patterns. A most rewarding feature of treatment with this drug has been its relative absence of side effects. Complaints from patient's families, such as "Mother is always asleep when we visit," have been virtually eliminated. (In fact, comments now are very encouraging; visitors remark that the patients seem like their "old selves.")

Like others, [3-6] we have seen no neurologic complications or other serious reactions usually associated with phenothiazine treatment in

elderly patients. Thioridazine has been used effectively, and no evidence has been reported of incompatibility with those chemotherapeutic agents administered for physical disorders. We also have had no evidence of tolerance to this drug and rarely need to increase the dose once the optimal dose is determined.

In our opinion, response to thioridazine in the older aged patient is relatively rapid. In this type of patient, prolonged administration of a phenothiazine will rarely elicit an effective response if this response had not been originally manifested a short time after initiation of therapy. We have found that thioridazine given in divided doses three or four times a day produces the most effective results. Usually, the most dramatic effect is seen within three or four days after thioridazine is initiated. It has been our practice, therefore, to institute treatment as soon as possible after admission. As a result, patient adjustment to the home and its regimen is greatly facilitated. The overall effect of our use of this drug has been to significantly improve patient's behavior, through rapid control of their overt symptomatology, and, thereby, to help promote a peaceful atmosphere in the home conducive to good management and effective care.

Summary

Disruptive behavior patterns of aged nursing home patients with chronic illness were improved rapidly and effectively as a result of treatment with thioridazine. Such treatment facilitated patient care and overall management procedures. "Good" to "Excellent" results (in 57 of 64 patients) were characterized by the transition from a hostile, uncooperative, and self-concerned attitude to one of calmness, cooperativeness, and sociability. Target symptoms most prevalent and most responsive to treatment were hostility, uncooperativeness, nervousness, and withdrawal. No serious side effects were encountered; mild and transient instances of drowsiness occurred in 5 of 64 patients.

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Myocardial Metastases: Pathological and Electrocardiographic Study

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Brit Heart J 30:383-390 (May) 1968

Two thousand five hundred and ninety-five metastasizing carcinomas were studied to decide the incidence and localization of myocardial metastases from different primary tumors as well as the extent to which they could be demonstrated by electrocardiography. Among the 122 cases of myocardial metastases the highest frequency was found among melanomas. Even carcinomas of the thyroid, kidney, liver, collum uteri, and lungs frequently gave metastases to the heart. The myocardial metastases occurred among cases with numerous hematogenous metastases, probably appeared late in the course of the disease, and affected the left heart more frequently than the right. Analysis of electrocardiograms taken shortly before death in 37 patients showed that no diagnostic changes were present.

"Instant Referral for Rehabilitation Purposes— A Panacea, No; An Aid To More Rapid Recovery, Yes"

L. D. Kerr

These days one hears much about instant coffee, instant pudding, instant this, instant that. Now comes the question: How about instant referrals for rehabilitation purposes?

Instant referrals? That, of course, is an oversimplification, in many cases impractical, in others, unwise. But it does raise a point which could hasten the day the patient returns to a life nearer normalcy than one stagnated by idleness.

A case in point might be a 25-year-old youth, in the bloom of life. Suddenly his abundant life is diminished by an automobile accident which leaves him an invalid incapable of bodily function from the waist down. He learns of his condition while hospitalized and the trauma, that feeling of hopelessness, creeps in and soon envelops his conscious mind. What then? Weeks filled with despairing thoughts and painful inactivity drag by. The patient has hit the lowest ebb of human existence with scant hope of ever leading a useful life.

Now, let us flash back into this young man's life, not far back, just to the moment he learns, while hospitalized, of his physical condition. His physician, a man reasonably well versed in the program of vocational rehabilitation, is able to hold out a wider ray of hope. He tells the patient about rehabilitation, how it works to provide an uplift to the bedridden, the person with a depressed mind, the individual who has lost a limb, the deaf, the emotionally disturbed, the arthritic, the paraplegic, yes, even the quadriplegic.

The young man becomes interested, thirsts for more information about the program, asks questions like:

How can rehabilitation help me? What does it cost? Who do I contact for help? Has it helped others? Why is it called rehabilitation? Does it meet with the approval of you, my physician?

Aside from the last question, the doctor might not be able to supply full and complete answers to the young man's questions. But, having a general knowledge of the rehabilitation process, he knows how to arrange a conference with someone who has the information.

The Process Begins

Actually, the rehabilitation process began the moment the physician mentioned the program to his patient. But the next step for the physician is to call in a rehabilitation counselor, a person qualified for his position both educationally and from experience. The counselor is a builder, a person who erects a bridge which transmits the promise of a fuller life, from the medical practitioner to the rehabilitation service institution or program and beyond.

He does this step by step, building one support after another until the patient has been lifted to the height of his physical and mental capacity. A platoon of professional personnel are his allies in this endeavor. They include the medical practitioner, and in some cases, medical and surgical specialists, specialists in physical medicine, therapists, vocational evaluators, psychologists, and vocational instructors.

They, along with the counselors, are the ones who make the rehabilitation program tick. But the physician is the stem winder. It is he who sets the course of the patient's rehabilitation through his diagnosis, evaluation of the individual's abilities and disabilities from a medical viewpoint, and, in many cases, his recommendations for specialized medical and/or surgical care, along with hospitalization.

From the physician's assessment of the patient's disabling condition a determination of eligibility for services is made. Once the patient is found eligible, the physician and the counselor formulate a plan for the patient's rehabilitation, and through a close relationship with the counselor, the physician is kept abreast of the patient's progress.

Vocational rehabilitation is not a charity pro-

Information Officer, Arkansas Rehabilitation Service

gram. Each individual accepted for services is told in advance that he is expected to pay for services he receives from the program if he has the means to pay. Any insurance benefits, or other assets to which he is entitled must be used as payment. If the patient is economically deprived, he may receive services without cost to him through the State-Federal rehabilitation program.

More than 1500 medical practitioners in Arkansas have been certified to the Arkansas Rehabilitation Service by a committee of the State Medical Society. The practitioners include the family doctor and all specialists.

It is a policy of the Arkansas Rehabilitation Service that physicians who provide services to clients of the agency will be compensated for those services with payment of "usual, customary and prevailing fees."

In addition to a chief medical consultant as a part-time staff member, the Rehabilitation Service utilizes the consultative services of medical practitioners in the 20 cities in which the agency has offices. There are eight consultants whose services are used by the Hot Springs Rehabilitation Center, which also has two staff physicians, and these full-time staff members: a medical director, a chief of physical medicine, and a supervisor of medical services.

Vocational Rehabilitation Defined

Vocational rehabilitation is just what the name implies—a restorative process designed to elevate a physically or mentally handicapped person from a posture of relative inactivity to a position of productivity. As noted above, this is done through the combined efforts of a team of professionals starting with the rehabilitation counselor and the examining physician and ending when the handicapped individual has attained the goal for which his particular program of services was planned, gainful employment.

In Fiscal Year 1967-68 the Arkansas Rehabilitation Service helped 4,302 handicapped persons into this aura of fuller lives. Annual earnings of the 4,302 rehabilitants *before* rehabilitation was approximately $1,300,000 with 2,499 of them being out of work because of their disabilities.

The earnings of the 4,302 persons *after* rehabilitation will approximate $8,500,000 with 3,047 of them now classified as wage or salaried workers engaged in competitive labor. The remaining 1,255 after rehabilitation, were classified as homemakers, unpaid family workers whose rehabilitation freed a family member to become a wage-earner, self-employed, and employees of sheltered workshops.

State Is A Leader

Arkansas holds a place of esteem among the 50 states in the number of handicapped persons rehabilitated annually. In Fiscal Year 1967-68 the State was third in national ratings computed by the Department of Health, Education, and Welfare. Only the District of Columbia and West Virginia ranked higher than Arkansas and it was the second consecutive year the State achieved a third place rating in the number of persons rehabilitated per 100,000 population.

In addition to maintaining 16 field offices in key Arkansas cities, the Rehabilitation Service operates the Hot Springs Rehabilitation Center and facilities at the following locations:

Arkansas School for the Deaf (the Audiology and Speech Center); Benton and Little Rock Units, Arkansas State Hospital (for screening and evaluating the mentally ill and mentally retarded adult to determine their potential as rehabilitation clients), and Arkansas Children's Colony (for evaluation and pre-vocational training of younger mentally retarded individuals).

Another agency operation is the program of services for the alcoholic. There are two parts to the program. One part is the center for intensive treatment of the alcoholic, located at the Benton Unit, State Hospital. The center is staffed by a clinical doctor, who is a psychiatrist, two other psychiatrists, general medical practitioners, a rehabilitation counselor and aides, nurses and psychiatric aides.

The other part of the program for alcoholics is conducted in the field by a staff supervisor, special counselors, and other professional specialists. The counselors work out of four agency offices spotted around the State.

Hot Springs Rehabilitation Center

The Hot Springs Rehabilitation Center is a multi-service institution which provides a comprehensive program of services to handicapped persons. Many persons admitted to the Center are sent there upon the recommendation of their physicians. Those enrolled at the Center represent a broad range of disabilities, both physical and mental.

Services provided at the Center for the handicapped include evaluation of the individual from social, medical, vocational and psychological

standpoints; medical services, including medical supervision and consultation, physical and occupational therapy, speech therapy, prosthetic and orthotic clinics; psycho-social services, including personal adjustment and social counseling, recreation, religious activities and dormitory supervision, and vocational services, including vocational counseling, pre-vocational experience, special education, and vocational training in 21 different fields.

The Center is located in buildings which once housed the Army-Navy General Hospital. The buildings and grounds were deeded to the State of Arkansas in 1960.

Toward Stronger Ties

Everyone involved in the rehabilitation program is acutely aware of the important part played by the medical profession in making the program a success. Recognizing this, personnel are anxious to improve the relationship between the physician and those who work directly with the handicapped.

Toward this end, last January 25 the Rehabilitation Service sponsored a meeting of more than 40 physicians who were members of the agency's newly activated Advisory Committee. The purpose of the meeting, also attended by the president of the State Medical Society and officials of the Arkansas Rehabilitation Service, was to coordinate activities and bring about closer communication and fuller understanding of the rehabilitation program among members of the medical profession. A subsequent meeting of the Committee was held during the 1968 Conference of the Arkansas Chapter, National Rehabilitation Association, in June at Hot Springs.

In a further effort to promote closer ties between the State Medical Society and the Rehabilitation Service, the Society's Rehabilitation Liaison Committee met January 31 in Hot Springs. The Committee, whose chairman is Dr. Paul G. Henley of El Dorado, explored various ways of strengthening the relationship of the two organizations.

The Rehabilitation Service welcomes these exchanges of ideas, thoughts and concepts because they, along with the knowledge and skills that go into the rehabilitation program, brighten the promise of life for the handicapped.

Lymphocytic Leukemia With Coexistent Localized Reticulum Cell Sarcoma

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Cancer 21:1184-1192 (June) 1968

Three cases of lymphocytic leukemia are reported in which autopsy disclosed the unexpected findings of a coexistent localized reticulum cell sarcoma. As in previously reported cases of this coexistence, the leukemia preceded the sarcoma and the two diseases coexisted at autopsy with a dual character. The author suggests the relationship of the leukemia and sarcoma differed in each of the three cases. Previously reported cases of a second form of association—lymphocytic leukemia and Hodgkin's disease—are reviewed. The author believes that these latter cases represent either chance occurrence or errors in interpretation.

Antropyloric Hypertrophy in Patients With Long-Standing Gastroenterostomies

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Brit J Radiol 41:49-54 (Jan) 1968

Benign antropyloric muscular hypertrophy in 13 patients with long-standing gastroenterostomy was confirmed by operation in six, and follow-up of the remaining seven, extending over five to 12 years, made the diagnosis almost certain. Radiological diagnosis of muscular hypertrophy rests on the demonstration of a relatively smooth, concentric narrowing of the pyloric antrum. It can become the principal cause of pyloric obstruction and present as a palpable tumor at the revision operation. Inflammatory changes in association with muscular hypertrophy may indicate an etiological relationship between antral gastritis and muscular hypertrophy.

STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
WILLIS E. BROWN, M.D., Professor and Chairman
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The Elderly Primipara

Orman W. Simmons, M.D. and Willis E. Brown, M.D.

An "elderly primipara" is considered by many authors to be a woman who has conceived for the first time in her mid or late thirties. Others believe that two different situations may be thought of and age alone should not be the primary designating criterion. They suggest that there is a difference between the female who marries late and conceives immediately and the woman who marries early but conceives late. Obviously, the greatest challenge to the obstetrician is this last group of relatively infertile women. But, the obstetrical challenge, regardless of lowered fertility, is the barrier of age and this must be the age of 35. Obstetrical senesence begins in the mid-thirties and is hardly the decade to be pregnant for the first time. Characteristics of the aging process are evident, such as cardiovascular disease, latent diabetes, musculoskeletal derangement and a decreased somatic tolerance to physical exertion.

The mid-thirties present women with substantial psychiatric changes which have been submerged until pregnancy which its current and future demands introduce. Contemporaries are finding themselves free to enjoy their growing children while the elderly primipara is only beginning to face the exacting burdens of early pregnancy and the trying nursery years. There is nothing new in the obstetrical concern for the elderly primipara. Obstetricians have long known of the complications associated with these no longer young pregnant women. In 1709 Mauriceau summed up his observations and findings in the management of the aging primipara; their labors were longer and more severe; preeclampsia was often present; boys were born more often than girls; weights of the infants seemed to be greater; infant mortality was higher.

In the middle of the 18th Century, De La Motte, acknowledging the wisdom of his predecessors, presented another view that the elderly primipara offered no problems which were different from her younger counterpart. Mauriceau's observations and admonishments continued to prevail despite De La Motte's opposite opinion. In the early 1930's Quigley wrote that he could not understand why the elderly primipara was considered to be such a difficult and dangerous obstetrical management problem. He stated that the hazards had been much overemphasized. Doctors Dodge and Brown of this institution agreed with this thinking in a later paper and protested the state of "hysteria" that these late primiparous pregnancies had engendered.

With these dissenting views in mind, an analysis of patients in the elderly primiparous category at the University of Arkansas Medical Center has been attempted and the findings presented.

HISTORICAL DATA

The approach to the elderly primipara from our vantage point in the late 1960's is considerably different from that of our predecessors in obstetrics. Time has not only changed obstetrical-surgical techniques, but also pharmacologic armamentarium. Therefore, we can afford to be somewhat bolder in our approach to this pa-

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tient, the elderly primipara with a premium pregnancy.

In the literature of the 1920's, concern over the elderly primipara was primarily one of maternal morbidity. Awareness was evident, however, that the elderly primipara presented tangible and intangible problems and the feeling in the obstetrical world at that time was that new solutions were needed. Eclampsia was higher in elderly primiparaes. Many authors reported an increase in the percentage of contracted pelves, abnormal fetal presentations, premature ruptured membranes and prolonged labor. These complications resulted in operative interference with an associated increased maternal morbidity and mortality and a concomitant rise in fetal morbidity and mortality. Linden in the 1920's reported a forcep rate of 34 per cent, while his section rate was only 0.5 per cent; his fetal loss was 10.2 per cent. Lundth's figures revealed a 24 per cent forcep rate, 1.13 per cent section rate and a fetal loss of 8.3 per cent. Quigley, in the 1930's, mentioned the change in some thinking over this group of obstetrical figures in the elderly primipara. He mentioned hearing of the opinion that every primipara over 33 to 35 years of age should be sectioned.

In one series reported in this era, the section rate was 11.4 per cent and the forcep rate was 54 per cent. The infant mortality was in the range of 7.8 per cent. By the 1940's antibiotics had appeared to alter judgement even more. Irving, in his series of elderly primiparaes, reported a 13.2 per cent spontaneous delivery rate with the remainder having some other form of operative interference. His section rate was 15.8 per cent. His fetal mortality, however, was high in the neighborhood of 8.9 per cent.

The 1950's and 1960's have seen an extension of the thinking which had arisen over the problem of the elderly primipara's management. Schmidt in 1958 reported a 22.3 per cent spontaneous delivery rate; 6.8 per cent perinatal mortality rate and an 11.2 per cent section rate. Arthur's figures were very similar with a 14.2 per cent section rate and a perinatal mortality rate of 8.9 per cent. Kane in 1967 demonstrated an increased section rate from 16 per cent in his 35 to 36 age group to 45 per cent in his 40 to 42 year old group. His overall fetal mortality for this age group was eight per cent.

MATERIAL

The data presented here is from a review of the records at the University of Arkansas Medical Center. The literature available on the subject of the elderly primipara alludes to the fact that this entity is more common in private practice than in hospital ward service. Our series certainly bears this out as we have but 43 cases during the years from 1951 to 1966. During that period of time there were approximately 35,000 deliveries at the University of Arkansas Medical Center. The number of elderly primiparaes delivered, therefore, represented 0.123 per cent of the total. This percentage figure is considerably lower than reported elsewhere in the literature. Clark and Bennett, for example, reported an incidence of 0.45 per cent in their series—four times our observation.

The clinic population at the University of Arkansas is predominantly a youthful primiparous group as shown by Curlin who noted that 90 per cent of all primiparaes delivered at the University of Arkansas Medical Center were 19 years of age or under. Forty-eight elderly primiparaes have been managed on this service during the period under study; five of the records of this patient group have not been located, hence, this paper will concern itself with the 38 charts available for study. The control group for this paper is a selection of fifty patients picked at random from the UAMC records. They represent multiparous patients over 35 years of age.

TABLE I
AGE DISTRIBUTION

AGE	UAMC	KANE	CONTROL
35-39 years	26 Pts.	3027	39
40-49 years	12	792	11
TOTAL	38	3819	50

Table I depicts the number of patients by age groups in our series as compared to a similar patient sample from a report by Kane. The ratio of the 35 to 39 age group in the elderly primiparaes as compared to the 40 to 44 age group in the UAMC records was 2.1 per cent, while in the series by Kane the ratio was 3.9 to 1. The control group at the UAMC was 3.5 to 1. This is as one might expect. The younger group is larger in all instances than the older.

Table II shows the type of fetal presentations in the UAMC series as compared with two other

series. The series by Fliehr shows presentations, other than the occiput anterior, as 31.4 per cent. The UAMC percentage of presentations, other than occiput anterior, was 36.9 per cent. Schmitz reports incidence of presentations, other than the occiput anterior, as being 18.4 per cent. The control group shows a percentage of presentations, other than the occiput anterior, as being 24 per cent. Therefore, it would seem that two out of the three series of elderly primiparaes reports an incidence of presentations, classified as abnormal, to be greater than in the control group.

TABLE II
PRESENTATIONS

	UAMC	FLIEHR	SCHMITZ	CONTROL
Occiput Anterior	63.1%	68.6%	81.6%	76.0%
Occiput Posterior	13.1%	14.8%	4.8%	4.0%
Breech	10.5%	3.8%	6.4%	6.0%
Occiput Transverse	5.2%	1.6%	6.0%	2.0%
Transverse Lie	2.6%	0.3%	0%	2.0%
Other	5.2%	5.8%	0.6%	10.0%
TOTAL NUMBER CASES	38	309	277	50

TABLE III

LENGTH OF LABOR	UAMC	FLIEHR	CONTROL
0- 6 Hrs.	6.2%	16.6%	53.4%
6-12 Hrs.	43.7%	32.6%	27.8%
12-24 Hrs.	37.5%	34.4%	16.3%
24-36 Hrs.	6.2%	7.6%	2.4%
Over 36 Hrs.	6.2%	7.2%	0%
AVERAGE	13.1 Hrs.		7.7 Hrs.

Table III will show the comparison of our UAMC series as to length of labor with the series of Fliehr. The UAMC group has only a total of 12.4 per cent of the patients with a labor that could be classified as prolonged, this is greater than 24 hours. While in the Fliehr series there is a total of 14.8 per cent greater than 24 hours. Our control group had labor 2.4 per cent greater than 24 hours. The UAMC average labor time was 13.1 hours while the control group was 7.7 hours. It is the general consensus that the average labor of the primipara is within the range of approximately 12 hours, and certainly for the elderly primipara time differential is not significant. Our control series shows a 7.7 hour average which is well within the average for multipara deliveries, which is often stated as being eight hours. Most deliveries, as can be seen from the total in our series, did fall in the 6 to 24 hour time interval.

TABLE IV
CESAREAN SECTIONS

	UAMC		WATERS		CONTROL	
	No. of cases		No. of cases		No. of cases	
Classical	2	5.2%	5	.77%	2	4.0%
Low Cervical	9	23.6%	73	11.25%	2	4.0%
Extraperitoneal	0	0.0%	27	4.16%	0	0.0%
Porro	1	2.6%	1	0.15%	1	2.0%
Other	1	2.6%	1	0.15%	0	0.0%

Table IV shows the section rate at the University of Arkansas Medical Center as compared to the study done by Waters and the University of Arkansas Medical Center control group. Of the 38 cases reviewed the number of sections totaled thirteen, which is 34.2 per cent section rate. This is to be compared with Waters, who had a 26.8 per cent section rate in 107 cases. In both series the largest percentage of sections performed were of the low cervical variety.

In the series from the University of Arkansas Medical Center, the low cervical sections were indicated for two predominant reasons: seven were done for cephalo-pelvic disproportionment and one of these was for cephalo-pelvic disproportionment secondary to uterine myomata.

Two of the low cervical sections were done for uterine inertia, and two low cervical sections were done for cephalo-pelvic disportion and severe preeclampsia. Two classical sections reported in our series were performed because of placenta praevia and because of the obese nature of the patient. One classical section was done for prolapsed cord, premature ruptured membranes with failure of pitocin induction. The Porro hysterectomy was indicated because of an unengaged vertex with ruptured membranes and amnionitis. One low verticle cesarean section with a tubal ligation was done on a mental defective patient. Our control series reveals 10 per cent cesarean section rate. We performed no extraperitoneal sections, while Waters reports an incidence of 4.16 in his series. He had a classical cesarean rate of .77, low cervical section rate of 11.25, and a .15 per cent of Porro hysterectomy.

The series by Waters was done just prior to the extensive use of antibiotics, therefore the extraperitoneal sections reflect the management in this era. In his paper on the *Adolescent Female*, Curlin reports a section rate of 7.9 per cent in the 12 to 15 age group, as compared with the 5 per

cent section rate in the 18 to 20 age group. While the overall percentage for the primiparaes that were sectioned was 3 per cent.

TABLE V
FORCEPS

	UAMC	FLIEHR	CONTROL
Elective Low Forceps	39.4%	50.6%	18.0%
Mid-Forceps	10.5%	4.2%	12.0%
Scanzoni Procedure	0%	2.2%	0.0%
Breech extraction with Pipers	7.8%	3.8%	2.0%
Other	0.0%	0.5%	2.0%
Spontaneous	7.8%	21.4%	58.0%

In Table V a comparison is made of the type of forceps used for delivery of the elderly primiparaes in our series and the series by Fliehr. As can be seen, 39.4 per cent were delivered by elective low forceps. Mid forceps were used in four cases for a percentage of 10.5. Three of the elderly primiparaes delivered spontaneously at a rate of 7.8 per cent. This is compared with 309 cases reported by Fliehr whose elective low forceps rate was 50.6 per cent. His mid forcep rate was 4.2 per cent. As can be seen from the chart, a Scanzoni rotation was used in 2.2 per cent of the patients. This maneuver is conspicuously absent from our series as the Scanzoni procedure is rarely used at the UAMC. Breech extraction appears in 3.8 per cent of Fliehr's cases. He had a 21.4 per cent rate for spontaneous delivery. Our control group reflects an elective forceps rate of only 18 per cent of the 50 cases in this series. The mid forcep rate was 12 per cent and our spontaneous rate was 58 per cent. Breech extraction was necessary on one occasion for a multipara, as was the vacuum extractor.

TABLE VI-A
UAMC COMPLICATIONS

Placenta Praevia
Uterine Inertia and Amnionitis
Chronic Renal Disease
Arkansas State Hospital (Mental Disease)
Chronic Pelvic Inflammatory Disease—Severe Lower Abdominal Pain
Diabetes and Obesity
Marked Talipes Equinovarus with Flexion Contracture of Both Hips
Polyhydramnios
Mental Defective with Pyelonephritis, Double Uterus, and Double Vagina
Chronic Hypertension—Nephrectomy during Pregnancy
Symptomatic Hiatal Hernia (Marked)
Third Trimester Bleeding, Etiology Unknown
Premature Ruptured Membranes with Intrapartum Infection
Myoma
Pre-Eclampsia

TABLE VI-B
COMPLICATIONS—KANE'S SERIES 3,819 CASES

Cephalo-pelvic Disproportion	8.2%
Post Partum Hemorrhage	5.5%
Preeclampsia	4.3%
Anemia	1.2%
Cord around the Neck	0
Premature Rupture of Membranes	2.1%
Abruptio Placenta	1.2%
Toxemia	1.7%
Myomas	4.5%
Essential Hypertension	1.5%
Placenta Praevia	2.2%

Table VI compares our complications with a listing as given by Kane in his article. Our overall complication rate was 55.2 per cent. This reflects 21 cases out of our 38 who had associated complications. Of these there were six uterine myomas which impeded delivery. This is a 15.8 per cent complications rate from myomas as compared with 4.5 per cent of Kane's series. A grand total of 16 patients with preeclampsia of varying severity. The overall toxemia rate was 42.1 per cent. Six of these preeclamptics had no other associated conditions while 10 were in association with other complications.

The individual complications can be seen in Table VI-A. We had one placenta praevia in this group, one uterine inertia with amnionitis, a chronic renal disease, a State Hospital patient referred here for delivery but no psychiatric diagnosis given, one patient had chronic pelvic inflammatory disease with severe low abdominal pain during pregnancy, one patient had diabetes with marked obesity, one patient had marked Talipes equinovarus with a flexion contracture of both hips, one polyhydramnios, one mental defective with pyelonephritis, one patient with double uterus and vagina, one patient with chronic hypertension which required nephrectomy during the pregnancy, one marked symptomatic hiatal hernia, one patient with third trimester bleeding for which no cause could be found, there was one cystitis in association with the uterine myoma which complicated the pregnancy, and one of the myomas was reported as being associated with myomatous degeneration during the pregnancy.

Kane's series reflects a study of 3,819 cases in a compiled series. This should reflect a more statistically significant group than ours. However, the

UAMC population can hardly be classified as normal, and our percentage may reflect a trend that might be quite different from Kane's series. The control group complication list probably reflects a fair sampling of what a multipara population of over 35 years of age would acquire in the way of obstetrical problems.

TABLE VII

INFANT MORTALITY

UAMC	18.4%
ERWIN	9.5%
CONTROL	10.0%

FETAL DEMISE IN ELDERLY PRIMIPARAES AT UAMC

3 Stillborns secondary to amnionitis
1 Stillborn secondary to maternal chronic reneal disease
1 Stillborn after a 25 minute maternal hyptensive episode
1 Stillborn from unexplained causes
1 Immature infant of 32 weeks after maternal nephrectomy

Table VII shows our uncorrected fetal mortality as being 18.4 per cent, as compared to a 9.5 per cent in a series by Erwin. A listing of the causes of the fetal demise includes three stillborns secondary to amnionitis, one from the mother of the patient with chronic renal disease, one premature delivery at 32 weeks after nephrectomy, one stillborn delivered after a hypotensive episode which occurred 25 minutes prior to delivery, and one stillborn from unexplained causes.

We had no maternal mortality in this group of elderly primiparaes studied.

DISCUSSION

Regardless of the age of the elderly primipara, she must be obstetrically managed in much the same manner as an obstetrician would approach any obstetrical patient. He must be cognizant that this woman, of an advanced obstetrical age, presents a greater challenge to his obstetrical ability than her younger counterpart. However, his goals should be the same. That is, (1) the best possible care for the mother, whether her course be routine or complicated by medical, surgical or gynecologic conditions during the pregnancy, and (2) to obtain for this patient a viable and normal infant. Therefore, as our specialty becomes more aware of the elderly primipara, the demand for more careful attention will follow. We must practice obstetrics in the light of our present day knowledge.

Therefore, from time to time, our evaluation of our management of the elderly primipara will have to be revised due to changing obstetrical techniques, better diagnostic procedures, more information on anesthesia effects on mother and infant, and more information on the diagnosing and management of the associated conditions which can be expected in this elderly obstetrical group. The obstetrician is well-schooled in the management of abnormal presentations. He, therefore, should be well able to manage any or all of the abnormal presentations which will appear. There will be a likelihood that the presentation in the elderly primipara will be other than the occiput anterior in about one-third of the cases. There will also be an increased cesarean section rate. This particular point has been under much scrutiny and opinions have been offered ranging the full length of the spectrum of management.

The decision for cesarean section is one which the obstetrician should not take lightly. Factors involved in the decision include the fact that this woman, because of her age, may be destined to have but one pregnancy. Therefore, each infant of the elderly primipara is a premium baby and delivery of a healthy infant is of paramount importance. Associated maternal conditions have to be considered in the decision for a section. It would seem from our series as well as from others, that the management of the elderly primipara by cesarean section has become liberalized. The management of the elderly primipara has undergone two phases: (1) before the era of antibiotics, the treatment was conservative with section only for the impossible vaginal delivery, and (2) since the advent of antibiotics, the use of cesarean section for the elderly primipara has become much more liberalized. Possibly, a review of our attitudes toward cesarean section as a primary means of management should be re-evaluated.

Management of the obstetrical patient with known disease will be dictated by what the disease does to the pregnancy, as well as what the pregnancy does to the disease. As we are dealing with elderly primiparous human females, the various parameters in all the complications cannot be evaluated in a paper, but rather must be individualized for the particular patient. One must, however, be prepared for the more common complications, adequate management of pregnancy and delivery with uterine myomata and all forms of toxemia and hypertension, for example. The complications seen, of course, will vary depend-

ing upon the population served. This may vary a great deal depending upon the number of private patients, as compared to the number of ward patients.

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Methanol Poisoning Outbreak in Kentucky

R. L. Kane et al (Univ of Kentucky Medical Center, Lexington)

Arch Environ Health 17:119-129 (July) 1968

A change in the brand of shellac thinner used to make an alcoholic beverage resulted in six deaths from methanol poisoning. In screening all potentially poisoned persons available with serum methanol, ethanol, pH, and electrolyte determinations, many asymptomatic methanol poisonings were discovered. A correlation was established between severity of illness and level of ethanol, further suggesting a protective effect. Among different types of treatment used with the 12 hospitalized cases peritoneal dialysis was shown to be effective, with a clearance rate five to ten times that obtained with forced fluid diuresis.

Nutrition and Infection Field Study in Guatemalan Villages, 1959-1964

M. A. Guzmán et al (J. E. Gordon, Massachusetts Institute of Technology, Cambridge, Mass)

Arch Environ Health 17:107-118 (July) 1968

The changes with age in height, weight, skinfold thickness, bone development, and head circumference of children from birth through the fifth year of life are reported for three Guatemalan villages for the five years, 1959 to 1964. The children were observed during a longitudinal prospective study of the villages in which a nutrition program with supplementary feeding was introduced in one, environmental sanitation and preventive and curative medical services were introduced in a second, and the third served as a control.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 24 SEX: Female BUILD: Stocky BLOOD PRESSURE: 100/70

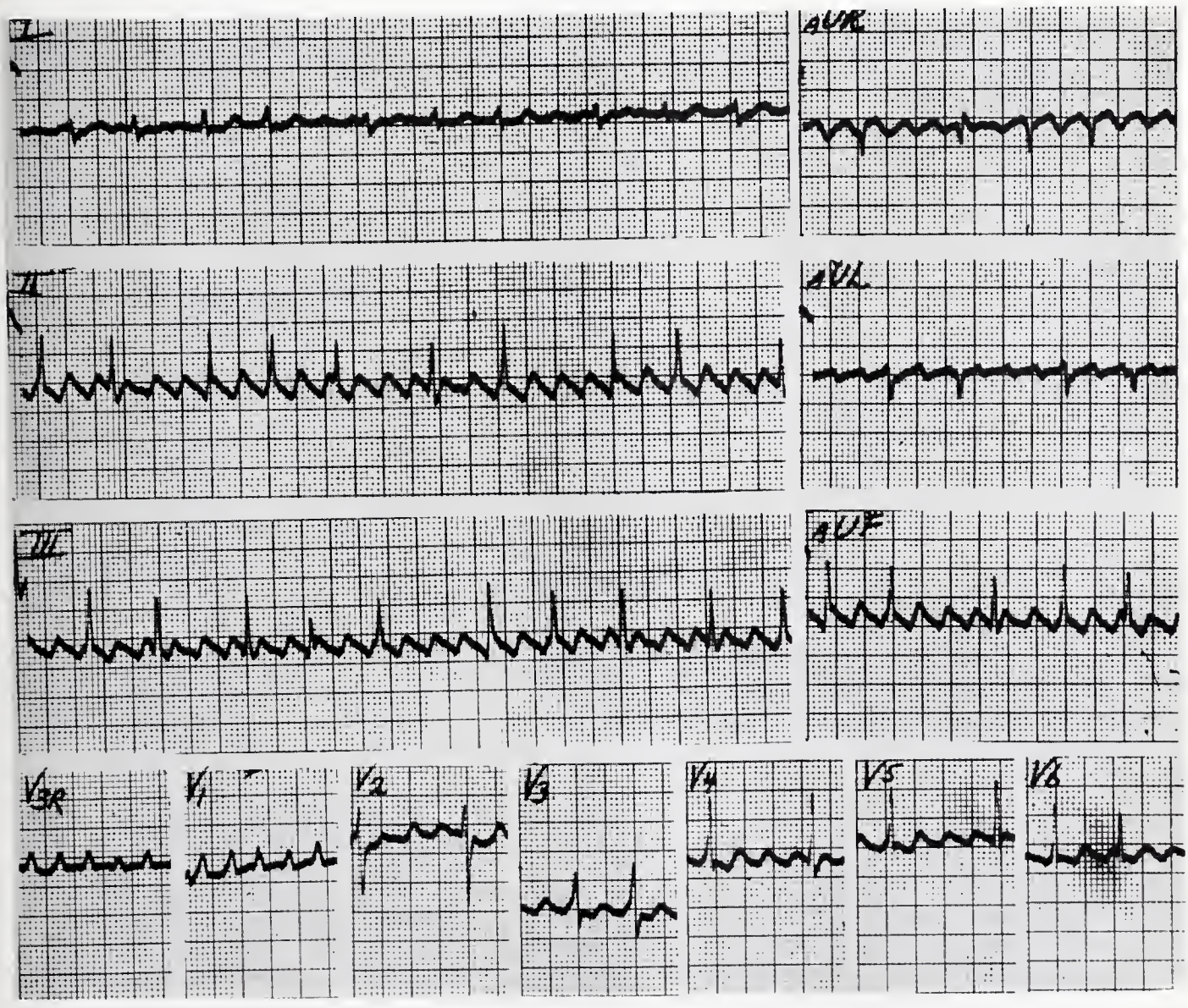
CARDIAC DIAGNOSIS: Rheumatic Heart Disease

OTHER DIAGNOSES: Pregnancy

MEDICATION: Digoxin, dosage not known.

HISTORY: Increasing edema and dyspnea for four weeks

See Answer on page 238



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PUBLIC HEALTH AT A GLANCE

Comprehensive Health Planning

Public Law 89-749, the Comprehensive Health Planning and Public Health Services Amendments of 1966, . . . was passed during the final week's sessions of the 89th Congress and signed by the President.

Below, sketched briefly is a breakdown of the kind of federal funds now flowing into any given state. Depending on how you count them, there are from 40 to 100 different programs involved in this flow, stemming from many federal agencies . . . .

First there are the funds that create resources. This includes the money that helps to build medical schools, nursing schools, hospitals, and other facilities; the research grants and other funds intended to create new knowledge; the training programs aimed at manpower development. These funds have many sources—PHS, VRA, Children's Bureau, etc. In the given state, the money is received and used by a variety of agencies. Some are governmental, some are private.

The second category includes those programs which provide services. For the most part these are vendor payment programs on behalf of the individual who purchases services from various sources. Here again there are numerous sources—Title 19, the OEO Programs, VRA, and so forth—and there are numerous separate channels of flow at the state level.

The third category is made up of programs aimed at specific targets, designed to encourage innovation, to demonstrate new methods, to find and apply better ways of doing things. These consist for the most part of what we have called "categorical" programs.

Obviously all of these types of funds and the programs they support are interrelated in fact. They are also interwoven at the point of delivery with state and local funds and—largest of all—with private dollars.

The importance of these interrelationships is obvious. Resource development cannot be logically separated from the resources consumption that takes place in the providing of services. Setting of standards of service cannot logically be divorced from innovation programs designed to upgrade standards, to do things better.

Meanwhile we have a great deal of planning going on in connection with each of these programs, considered separately. Some of the planning is statewide. Some of it is based on a locality or a metropolitan area. This multiplicity of planning efforts at the state level operates under the same multiplicity of agencies and authorities —some governmental, some non-governmental, some a mixture of both.

But nowhere is there an entity that relates these plans to each other and decides on relative priorities. There is no data on which to base decisions between alternatives. No one is equipped to say, for example, that unless money is poured into five new nursing schools in our state next year we cannot extend the benefits of Title 19 to more people. No one has either the knowledge or the authority to decide to give top priority to building nursing homes in a particular area of the state instead of spending those dollars for something else.

State Planning Agency

The first part of the Comprehensive Health Planning and Health Services Act is an attempt to provide a focus for this kind of decision. To qualify for this planning aid, the Governor must designate or create a single state agency with the responsibility for administering or supervising the state's health planning functions in the development of a comprehensive plan. This can be a new agency, an existing agency, or an interdepartmental entity . . . .

This state health planning agency will have to possess a base in official governmental authority which permits it to obtain plans and data from

all agencies charged with health responsibilities and relate these into a total health planning effort. It will need authority to receive and spend funds, to employ a full-time executive and qualified planning staff. It will require the competency to provide staff support for comprehensive health planning, as a basis for decision-making by the Governor and legislature and by the many other official and non-official participants in the planning process.

P.L. 89-749 requires that this designated state agency be advised by a state health planning council, representing state and local agencies and groups concerned with health but with a majority of its members representing consumers of health services . . .

. . . P.L. 89-749 also has other provisions supportive of health planning. One of these is a project grant program for areawide health planning similar to the existing program except that the new law requires a relationship between these project grants, made on a regional or local basis, and the comprehensive planning program just outlined. This relationship is of vital importance. It links statewide planning with the plans and actions undertaken in the metropolitan areas where so many of our people, and our problems, are concentrated. A third aspect of support for planning is provided through funds for training people in planning skills—a field of critical manpower shortage.

Flexible Formula Grants

The second major aspect of P.L. 89-749 deals with service-providing functions—the Public Health Service-State Health Department programs for health services. These have been compartmentalized stringently in the past into 8 or 9 categories. For example, before P.L. 89-749, if a state health department had decided in a given year that it was more important to concentrate on a specific health need which it believed to be important and soluble, rather than on a nationally-determined disease control priority, it had no flexibility to fit these funds into the state's priorities.

. . . Now, the state will be able to plan its use of health services money—to strike hard at the eradication of syphilis, for instance, because it appears that this is an area in which important success can be attained. Obviously the granting of these funds will be dependent upon a state plan which shows what the state intends to do. This plan, in turn, must be related to the comprehensive plan . . . .

The third important aspect of P.L. 89-749 relates to the series of project grant authorities which have proliferated over a period of years. These were grants from the Public Health Service to public or non-profit private organizations in the city and counties. Most of them were for specific disease control purposes or for developing new ways of delivering a variety of services. These were the targeted, innovative grants just discussed. Each of these authorities was quite strictly limited—even the community health services and facilities project grants, for example, were limited to out-of-hospital services and weighted toward the chronically ill and aged.

What has been done in this instance is to pool these project grant funds, and to broaden the possibilities of using these grants for innovation, demonstration, or a specific target. One such target might be tuberculosis. Another might be narcotics addiction. A third might be putting services into a local area with a critical shortage of health manpower. None of these three examples represents a uniformly distributed national need, but each is of critical importance in certain places . . .

The planning for the administration of this act, within the Public Health Service, has been a strenuous and sometimes painful process.

In the past, the bureaus, divisions and programs of the Service have carried full operating responsibility. This responsibility has prevailed not only in Washington but through our nine regional offices to the actual level where the program is being carried out. The Office of the Surgeon General has primarily performed a coordinative and policy-setting function, and nine regional offices have served principally as "hotels" for the program operators whose first line of responsibility traces back to the bureau and division chief in Washington. This structure was a reflection of the extreme fragmentation of programs.

But this new program simply would not fit this mold. Every Bureau is deeply involved: the Bureaus of Health Services and Manpower almost by definition, the Bureau of Disease Prevention and Environmental Control through its targeted programs, the NIH through the regional medical programs, the NIMH through its deep roots in state and community planning and activity.

Thus we have reached the decision to put the budget for this program in an organizational

entity responsible directly to the Surgeon General, and related closely to all the bureaus. It will be administered as a Public Health Service enterprise. And its operations will stem from the regional offices.

Regional Grants Management

Stating it a little differently, the development of policy and tools for implementation will be the responsibility of the office of the Surgeon General, with strong and continuing input from all five bureaus. A special responsibility for assisting the regional health directors in the operating phase of the program is assigned to the Bureau of Health Services. The regional offices will be where the action is.

Specifically, the management of the new grants program will be located there. They will receive applications, arrange for and supervise their review both technically and in terms of conformance with comprehensive plans, award the grants and carry out necessary follow-up procedures. One obvious advantage appears immediately—instead of some 15 places to which applications were directed for these grant programs, there will now be a central focus and a single point of application.

Obviously it will not be possible to have all the necessary technical skills in every regional office. The intention is that the regional health director will be able to get his technical advice from a wide variety of sources—a university, a local health department, a program in the Public Health Service, etc.—wherever the competence exists to meet his need.

In this connection too, it is hoped to create in each region an outside advisory council which would be a strong source of guidance to the regional health director in managing this program. These councils would include competencies from industry and the universities, from medical practitioners, from experts in public affairs, and the like. This council system, in addition to serving a vital purpose in support of the regional health director, would have the further advantage of bringing additional talented and competent people into the review of federal-state-local programs.

This involves almost a 180-degree turn in the operation of the regional offices. Heretofore each has had a very small "house" staff plus a large number of program representatives from the various bureaus, all owing their basic allegiance to their home program and frequently engaged in a kind of competitive scramble for grants business. This was a perfectly natural outgrowth of a system which measured accomplishment in terms of "sales."

It is anticipated that the changed procedure will bring about a changed climate in this regard. The programs will now be charged with defining objectives, assisting states in setting goals, measuring program effectiveness, and similar activity.

Above and beyond these practical benefits, it is believed that there will be an intangible but important strengthening of the federal-state partnership through the geographic decentralization of substantial authority. It is the truly joining together—not a contest over rights and powers but in a common cause. The striving to meet needs as and where they exist.

There is a great deal to do together. The ultimate goal has been set for us by society—the best level of health for all people up to the limits of our national potential. Toward this end the need is to achieve access to high quality health care for all and create an environment that fosters rather than impedes human fulfillment.

This is an important step toward solving a number of the problems with which all are deeply concerned. By entering freely and fully into partnership, there can be eliminated many of the difficulties that have resulted from fragmentation of effort, in Washington and across the nation. More importantly, by doing, there can be generated the social action necessary to deliver the nation's full potential for advancing the health of America.

Properties of Human Serum Low Density Lipoproteins After Modification By Succinic Anhydride

A. Scanu, H. Pollard, and W. Reader (Argonne Cancer Research Hosp, Chicago)
J Lipid Res 9:342-349 (May) 1968

Human serum low density lipoprotein of d 1.019-1.063 (LDL_2) treated with succinic anhydride at pH U.5-8.0 showed the same chemical similar to those observed in Cushing's syndrome, but they disappeared with successful treatment of the depression. Diagnostic confusion could arise in a patient with depression and suspected Cushing's syndrome.

EDITORIAL

Health Care: A Dilemma

Alfred Kahn, Jr., M. D.

What is better health care? Exactly what it says. But unfortunately it has become synonymous with centralized government controlled health care. Physicians are for better health care but in general they are opposed to governmental medicine.

Governmental medicine or "centralized medicine" is a little hard to define but loosely speaking it refers not alone to physicians working for the government but also to the entangling web of restrictive control through which the national government can exert strong influence if not control over the practice of medicine and the operation of medical institutions as hospitals. For example, a hospital can need to expand and has need of moneys, etc. for this expansion; it may not want to accept government moneys as a matter of principle or to avoid government control of its policies; but the hooker is that in accepting some government money for a student aid program it can be brought into the fold of government control as though it had taken building money. If the prey avoids one tentacle of an octopus he may be entwined in another.

The philosophic question which arises is, is this in the best interest of the public and the medical profession? The public has no constitutional guarantee of health care, yet in a sophisticated, affluent society health care is a must, and no one should argue this point. At this juncture, one might reasonably ask did private medicine fail to provide this. The answer is mostly yes and partially no. The most likely criticism of health care was in the aged group—and the interesting fact is that the fault here was not so much with the practicing physician as with the insurance companies; they did not in general attempt to provide health insurance for the over 65 year group and the policies when provided were cancellable. The elderly could not get hospitalization, but they were getting care in physician's office. This paved the way for medicare.

The result of medicare has been the government intrusion into the operation of the hospitals and the scrutinization of medical practice, fee schedules, etc. This gradual, progressive, stepwise promulgation of government regulation is narrowing the field of private practice by eliminating the older age groups. It has brought with it standardization of practice and a vast population of older patients in hospitals designed for the acutely ill and for "quick turn over" in patient population.

Now, a segment of the younger age group will come under government control through medicaid. This further narrows the field of strictly private practice. The necessity of Medicaid can be debated but it is here. The physicians involved in this program will have their work time diluted by filling in forms and the hospitals may eventually acquire a sizeable population of the very young in order to qualify for the program.

All of this brings up a need for a philosophic re-examination of the problem of health care. The main point here is that the practice of medicine is in a different social milieu than it with 50 years ago. At that time, there was a great effort to teach thrift and to save money—set aside one's savings until they were sufficient to buy new clothes, new cars, etc. If there was an economic disaster in the city, the unfortunate could move back to the farm where most labor was

manual, and an extra hand was welcome; food was home raised. Medicine, too, was not so sophisticated and physicians tended to practice out of their hand bags and the hospitals acquired only the seriously ill. Medical care was obtainable at a relative low cost but it was fairly primitive by today's standard. In short, savings and the return to the farm were important factors in our economy.

Opposed to this today are credit buying and farm mechanization. First of all, a high percentage of the population commits all of their income to the purchase of goods and services on time. Not alone does this reduce the percentage of income saved but it commits the purchaser to debt and he keeps a relatively small cushion of savings for emergencies. Of necessity, these individuals have to join a retirement program as they have saved too little to retire—company plans, social security, etc. He may have very little money to pay an emergency hospital bill, which will probably take precedence over the physician's bill; hospital insurance becomes a must. Secondly, if the city dweller has an economic debacle he cannot retire to the farm, as it is being mechanized and the flow of population is to the city as complicated farm equipment displaces farm workers. Since unemployment is low now, the major factor here is the relative small cushion of savings for relatively expensive medical care.

The "expense of medical care" has to be examined before this is meaningful. The professional services by physicians have increased some but the great jump is in the cost of hospitalization. Hospital care is a necessity to get refined medical care for difficult cases; hospital costs for this greatly enlarged hospital usage have soared due to the vastly increased labor costs and the increased costs of materials. It is important to recognize that most hospitals do not earn any appreciable profit.

What is the focal point in this dilemma of increasing government intrusion into private practice, which the physician dislikes, as opposed to the decreased ability of certain segments of the population to pay for medical goods and services. It seems that the inescapable somewhat oversimplified answer is the changed American way of living—a change from a rural to an urban civilization in which credit buying takes precedence over savings which might cushion the financial effects of aging, illness, catastrophe, etc. Medicine seems to have been singled out by government as a whipping boy in this situation when in reality it's just one facet of the overall problem of a changing mode of living.

Assuming all of this, is there any way out of the Fabian route to socialized medicine which we are witnessing. Possibly, yes. First of all, the cost of medical care would go down without a decrease in quality if physicians would not hospitalize any patient unless it is absolutely necessary—as limitation to surgery, febrile disease, nonambulatory cases, obstetrics, and very complicated diagnostic problems. Reserve the hospitals for the really ill. Secondly, private insurance carriers having seen the public's hostility to inadequate coverage for the very old and very young should try and find an acturially acceptable rate schedule to cover all segments of the population for serious illness. Compulsory participating insurance should be carried with a private firm for all the employed. Limit government assistance to assistance in purchasing insurance for unemployed and truly medical indigent by realistic standards. Some further government help is needed for the care of the incurably ill as cancer cases, severe rheumatoid arthritis, etc.; loans for new hospitals in this area are desirable and perhaps VA beds not needed for service connected disabilities could be used. A great expansion of convalescent beds (remove these patients from hospitals for the acutely ill) should be undertaken, and since the cost of this operation is vastly less than our conventional hospitals, private capitol can probably handle this program. Operational expenses should be financed through an insurance program.

Granted that the above suggestions might work, the keystones to the whole program would be the avoidance of over hospitalization coupled with a sound private insurance program. In any event, one thing seems certain for the physician whether the "third party" in the doctor-patient relationship is the government or an insurance company, the blizzard of forms and delays in payment are going to be a permanent fixture.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D.C.—President Johnson signed into law the Health Manpower Act of 1968 which extends for two years, until June 30, 1971, and expands the federal programs of aid to medical and allied health schools.

Other health legislation enacted into law: (1) establishes a National Eye Institute as part of the National Institutes of Health; (2) requires federal buildings to provide easy access to the handicapped; (3) authorizes standards to prevent gas lines from leaking and exploding.

President Johnson termed the health manpower law "a major measure in the battle for better health." It authorizes about $1.2 billion in federal aid to medical and other health personnel schools over two years for construction, expansion and operating expenses. Congress followed most of the Administration's proposals in approving the legislation but limited the extension to two years, instead of the four years requested.

Schools of pharmacy and veterinary medicine were made eligible for the first time.

Money authorizations for schools in the new law:

Medical and other health professions—construction grants, $395 million; institutional support, $285 million; scholarships, $32.8 million; student loans, $70 million; total, $782.8 million.

Nursing—construction, $60 million; institutional support, $75 million; traineeships, $34 million; scholarships, $50 million; student loans, $41 million; total, $260 million.

Allied health (fiscal 1970 only)—construction, $10 million; institutional support, $20 million; traineeships, $5 million; new methods, $4.5 million; total, $39.5 million.

Public health—graduate training, $20.5 million; traineeships, $24 million; total, $44.5 million.

Health research construction, $50 million.

*** *** ***

Both the Democratic and Republican 1968 national campaign platforms cited the importance of the role of private enterprise in the development of government health programs. The GOP placed greater emphasis on private medicine than the Democratic party did.

"While believing no American should be denied adequate medical treatment, we will be diligent in protecting the traditional patient-doctor relationship and the integrity of the medical practitioner," the Republican plank said.

The Republican platform also pledged "to encourage the broadening of private health insurance plans," including extension to cover mental illness.

"Through a partnership of government and private enterprise, we must develop new coordinated approaches to stem the rise in medical costs without lowering the quality or availability of medicare care," the Democratic platform said.

Without being specific, the Democrats indicated support for universal government health insurance or, at the least, wide expansion of medicare or medicaid (or both). Boasting of "giant steps" in the past eight years "in assuring life and health for its citizens," their platform said: "We Democrats are determined to take those final steps that are necessary to make certain that every American, regardless of economic status, shall live out his years without fear of the high costs of sickness."

The Democratic health plank also said medical costs could be lowered by more out-of-hospital care, comprehensive group practice arrangements, increased availability of neighborhood health centers, and the greater use of sub-professional aides.

The Republican platform said "inflation produced by the Johnson-Humphrey Administration" was a major factor in the increases in health care costs.

American Medical Association spokesmen appeared before the platform committees of both

parties at pre-convention hearings. Dr. Donald E. Wood, Indianapolis, Ind., chairman of the AMA's Council on Legislative Activities, testified at the Republican hearing; Dr. John R. Kernodle, Burlington, N.C., a member of the AMA Board of Trustees, at the Democratic. Their statements were the same.

The AMA statement expressed hope that the next federal Administration, whether it be Democratic or Republican, "will provide men and women in medicine, and those engaged in the allied sciences, the opportunity to think and work in a free atmosphere to pursue their common goal of a better and more healthful life for everyone."

The AMA emphasized the desirability of health programs being partnerships among private enterprise and federal, state and local governments. The AMA pledged its support to such cooperative programs for mental illness, infant mortality, occupational health and safety, and education of physicians and allied health personnel.

Concerning health care costs, the AMA said:

"We believe that programs to increase the production of medical and other health personnel can be cooperatively and effectively undertaken. We are further firmly convinced that we can and must work toward a health in the inflationary spiral, and toward a productive use of tax dollars expended in the health area. New and old tax supported programs in the health field should be critically evaluated so that while the best health care is attained, overlapping, waste and unnecessary programming are avoided. In this regard, we recommend the establishment of a cabinet-level Department of Health, headed by a physician as Secretary, with overall responsibility for all federal health programs, so that maximum effectiveness may be attained.

"We have always maintained that high-quality medical care should be available for all Americans, including those who need assistance in meeting the costs of such care. . . Firmly convinced that adequate health insurance coverage is the choice mechanism for the financing of quality health care costs, we suggest that the country embark on a program of tax credits for health insurance premiums. Under such a plan, all individuals and families would be encouraged to provide themselves with health care cost protection, with those in financial need receiving the greater amount of tax credit on a graduated basis."

*** *** ***

The Food and Drug Administration and the Pharmaceutical Manufacturers Association differed as to the significance of the findings of a Georgetown University School of Medicine team after studies comparing three brand-name drugs with their generic versions.

Drugs tested were diphenylhydantoin, prescribed for treatment of epilepsy, chloramphenicol and sulfisoxazole. The studies supported by the FDA showed:

1. Some generic drugs are absorbed more slowly by the body than the brand;
2. At least one generic drug was absorbed faster by the body than the brand drug;
3. Absorption rates were governed by such factors as crystal size of the drug, hardness of tablets, and the types of drug capsules.

"Our findings raise serious doubts about the equality of different products of the same drug in the treatment of disease," said Christopher M. Martin, MD, Professor of Medicine and Pharmacology.

"The studies by Dr. Martin and his research team, showing how different versions of the same drug behave differently in man, provide further proof of the scientific fact that these differences can be significant in patients," C. Joseph Stetler, PMA President said.

"Clearly, there is no evidence to indicate that all formulations of the same drug are equivalent. From all the evidence that has been developed to date, as Dr. Martin's studies point out, quite the opposite may be true."

On the other hand, FDA Commissioner Herbert Ley, Jr., MD, said his agency "has in no sense concluded that 'generic' drugs are less effective as a class than 'brand-name' products."

"In my opinion, there are fewer than two dozen drugs where therapeutic differences among competing products may be a problem," he said.

"Data from the Georgetown work has been useful to the FDA, but it is completely unwarranted to reach any general conclusions about drug equivalency on the basis of these exploratory studies."

*** *** ***

A retired air force officer, Maj. Gen. Theodore C. Bedwell, Jr., MD, 59, has been appointed to the newly-established post of chief medical officer

for the medicare program. He will be liaison with the medical profession.

He most recently was director of staff, office of the deputy assistant secretary of defense (manpower—health and medical). A native of Texas, he was graduated from Baylor University Medical College. A holder of the distinguished service medal, Dr. Bedwell in 1962 received the American Medical Association's special aerospace medicine honor citation.

Changes in Professional Overhead Expense Plan

Rather, Beyer & Harper, insurance agents, have announced changes in the Arkansas Medical Society Professional Overhead Expense Plan. The maximum period for disability payments under the plan has been extended from 15 to 18 months. Also, effective November 1, 1968, and ending October 21, 1969, the monthly limit of indemnity insured under this policy will be increased 25% during that twelve month period for claims occurring during that period.

Supreme Court Broadens Doctor-Patient Privilege

The Arkansas Supreme Court has ruled that the privilege status of a doctor-patient relationship applies to criminal as well as to civil cases.

Health Examination Survey Scheduled in Poinsett and Crittenden Counties

The Public Health Service's Health Examination Survey will visit Poinsett and Crittenden Counties November 8th through December 19, 1968. Examinations will be given in the Health Survey's mobile examination center to selected adolescents aged 12 through 17 years. The purpose of the examinations is to collect on a uniform basis statistical information on various aspects of the health of the youngsters and to obtain data on certain physical and physiological measurements relating to growth and development in this age group. Poinsett and Crittenden Counties were surveyed in 1964 under this same program.

EXPANSION OF FIRST YEAR ENROLLMENT 1963-1971

There is understandable impatience with the rate of expansion of medical school entrants since the appropriation of federal assistance in 1965. This report is the first of a series analyzing the experience which medical schools have had with some of the factors that contribute to delays in the construction of educational facilities.

The Health Education Assistance Act of 1963 (PL 88-129) was enacted into law in September of the same year (FY-64). The Act responded to the predictions of a medical manpower crisis by a number of diverse groups, including the Report of the Surgeon General's Consultant Group in Medical Education in 1959 and the Resolution of the Institutional Membership of the Association of American Medical Colleges (January 1961).

With the provision of appropriations authorized by PL 88-129, seven medical schools were advanced enough in their planning for new construction to have their applications approved and funded for FY-65. The total amount estimated for the educational component was $68.4 million. (Figure 1). The amount requested from the federal government under PL 88-129 was $48.8 million (71 per cent). The amount awarded after review was $29.0 million (42 per cent). The difference of $19.8 million (29 per cent) can be assumed to represent either a constriction in institutional plans or provision of additional funds by the institutions for essential features of their plans.[1]

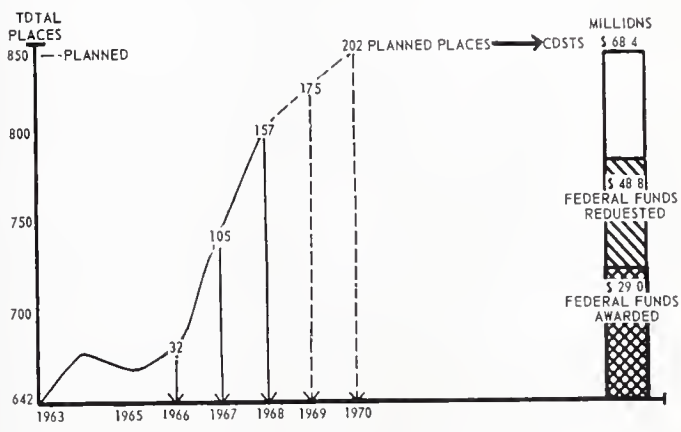

FIGURE 1

The number of actual and planned places for 7 schools 1963-1970 and the cost of planned places.

1. PHS Division of Hospital and Medical Facilities, Educational Facilities Branch, July 22, 1964 and June 21, 1965.

Under the terms of the awards, these institutions agreed to produce a total of 202 new places in the first-year class in medicine by 1971. In 1963, the total number of first-year places in the seven schools was 642. The goal for expansion is 844 (31 per cent increase). Figure 1 shows that the first-year class of September 1968 is expected to number 797 places, expanding by 157 new places as scheduled. This expansion has been achieved in spite of the fact that with one exception each of these medical schools reports delays in the construction program from 6 months to more than a year.

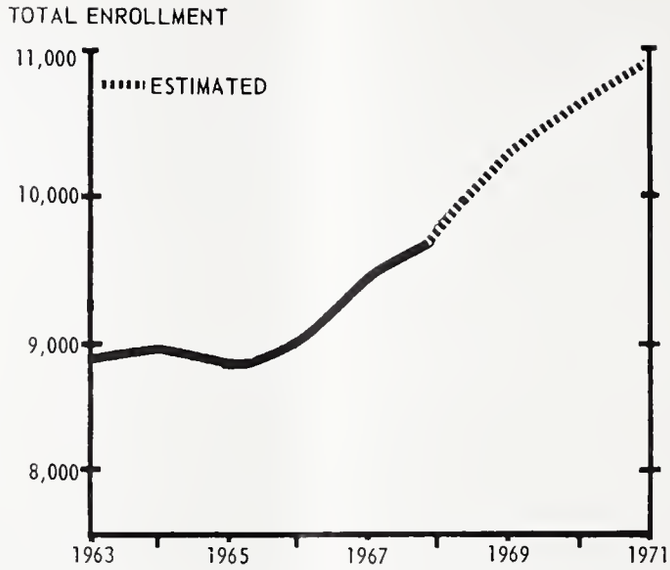

Figure 2

Total first-year enrollment 1961-1968 and projections to 1971.

Figure 2 shows the national experience and projections for first-year places in all medical schools over the same period. Table 1 analyzes this graph in terms of additional places in new schools and additional places in established schools.

TABLE 1

Cumulative Expansion of Existing and New School First Year Enrollment 1963-1968 and Projections 1969-1971

Year	Total First-Year Enrollment	Total First-Year Expansion	New Places: Cumulative Expansion of Existing School Enrollment	New Places: Cumulative Enrollment of New Schools
1963	8,772	----	----	----
1964	8,856	84	60	24
1965	8,759	35	11	24
1966	8,964	192	123	69
1967	9,474	702	487	215
1968	9,653*	881*	449*	432*
1969	10,292	1,520	888	632
1970	10,656	1,884	1,140	744
1971	10,950	2,178	1,284	894

*Estimated from data available July 19, 1968.

No. 3210-60

THINGS TO COME

The 22nd National Conference on Rural Health will be held at the Philadelphia Marriott Motor Hotel, Philadelphia, Pennsylvania, on March 21 and 22, 1969. The Conference is sponsored by the AMA's Council on Rural Health.

The Scott and White Conference in Medicine and Surgery will hold its Seventeenth Annual Meeting on February 14th and 15th, 1969, at the Knights of Columbus Hall and the Scott and White Memorial Hospital, Temple, Texas. A Symposium on Medical Problems in the Clinical Practice of Geriatric Medicine will be presented.

RESOLUTIONS

WHEREAS, the Members of the Pulaski County Medical Society, in an effort to express themselves on the loss of their colleague, Jan Williams Crow, M. D., note with sincere sorrow his passing from this life; and

WHEREAS, Dr. Crow had been a highly respected member of this Society for thirteen years, had contributed his skills and talents to the health needs of his community, and had earned a position of leadership among the citizens of this county; and

WHEREAS, this Society recognizes that a void has been created in his family and in his community that can never be filled;

BE IT THEREFORE RESOLVED

THAT, this resolution be made a part of the permanent records of this Society; and

THAT, a copy of this resolution be forwarded to the family of Dr. Crow as an expression of our heartfelt sympathy; and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
John McCollough Smith, M.D.
Robert Watson, M.D.

Adopted by the Executive Committee
September 18, 1968

PERSONAL AND NEWS ITEMS

Dr. Hedges Secretary of AAGP

Dr. Harold Hedges of Little Rock has recently taken office as secretary-treasurer of the Arkansas Academy of General Practice. He succeeds Dr. Thomas D. Honeycutt. Dr. A. W. Strauss, Jr., of Little Rock is currently president of the organization.

Dr. Sutter Named to J & J Board of Directors

Dr. O'Neal Sutter of Tuckerman has been appointed to the Board of Directors of the J & J Ambulance Service, which is currently involved in an expansion program providing service to residents of several counties in Arkansas and Missouri.

Dr. Lytle and Dr. Walker Attend American Academy of General Practice

Dr. Jim E. Lytle of Batesville and Dr. A. T. Walker of Mammoth Spring attended the recent annual Scientific Assembly of the American Academy of General Practice in Las Vegas. They are both members of the Academy.

Dr. Harris Completes Military Courses

Major Walter P. Harris has recently completed non-resident courses in two combat arms schools.

He is with the 122nd United States Army Reserve Command at Fort Chaffee, Arkansas. He has practiced medicine in Danville for the past 18 years.

Physicians Participate in Regional Programs

Dr. Joe Hall of Fayetteville, Dr. Charles Wilkins of Russellville, and Dr. Jack Royal of Hope will serve as three of the 14 regional chairmen working with the Cardiopulmonary Resuscitation Program of the Arkansas Heart Association. The state-wide program is designed to offer instruction in the technique of artificial respiration to medical and other hospital personnel.

Dr. Young is Featured Speaker of Freedom, Inc. Meeting

Dr. Mitchell Young, of Texarkana, is national chairman of a newly formed organization, Freedom, Inc. He was the featured speaker at the October 1 meeting in Malvern. Freedom, Inc., is a non-profit corporation created by patriotic Americans to stand for freedom in the education of their children and to oppose government control of education.

Articles Taken From Car

Dr. J. W. Wilson suffered the loss of his medical bag, a pistol, and a recorder in Little Rock in September. The items were taken from his car while he was attending a meeting.

Psychiatric Group Meets

The Mid-Continent Psychiatric Association held its annual meeting at Little Rock in September. Dr. John G. Howard, Jr., of Little Rock, is president of the group. Arkansas physicians participating in the meeting program were: Dr. Richard Walters, Dr. George W. Jackson, Dr. Richard H. Sundermann and Dr. W. Payton Kolb, all of Little Rock.

Dr. Millard Named Finance Director for Campaign

Dr. Roy Millard of Russellville has volunteered to serve as finance director for region six in the re-election campaign of Governor Winthrop Rockefeller.

Dr. Saliba Speaks at Wallace Supper

Dr. Norman Saliba of Forrest City was the guest speaker at the George Wallace campaign supper held in DeWitt in October. He lectures widely for conservative causes and is active in the George Wallace campaign.

Magnolia Physician Honored

The Southern State College of Magnolia is planning to build a new classroom and labora-

The Fort Smith Clinical Society presented a program on Diabetes Mellitus on September 11th in Fort Smith. Pictured above are (left to right) Dr. William C. Holmes, Jr., secretary of the Clinical Society, guest speakers Dr. David Klachko and Dr. Alexander Marble, and Dr. T. A. Feild, III, Clinical Society president.

tory building to be named in the honor of Dr. John H. Wilson of Magnolia. This is in recognition of his 24 years of service to the Board and Southern State College.

Ophthalmologists of the State EENT Section Have Meeting

Ophthalmologists of the State EENT Section participated in a session on Application of Applanation Tonometer and Clinical Practice in Fayetteville October 12th. Dr. Morriss Henry and Dr. K. W. Cosgrove presented the program. Physicians and their wives were guests of Dr. and Mrs. Max McAllister of Fayetteville, Dr. and Mrs. J. L. Pickens of Rogers, and Dr. and Mrs. Morriss Henry of Fayetteville for a brunch following the scientific session.

Dr. Orr Named Member of Dads' Committee at Stephens College

Dr. William S. Orr, Jr., of Little Rock, has been named a member of the Dads' Committee at Stephens College, Colombia, Missouri, where his daughter, Sharon, is a freshman. The Dads' Committee members participate in Stephens' public relations and development projects during the year.

Dr. Samuel Landrum, president of the Tenth Councilor District Medical Society, and Dr. A. S. Koenig, Tenth District Councilor of the Arkansas Medical Society, at a meeting of the District Society held in Fort Smith in September in conjunction with Fort Smith Clinical Society.

PROCEEDINGS OF SOCIETIES

The Pulaski County Medical Society

The Pulaski County Medical Society protested to the Little Rock Board of Directors that a privilege tax increase was unreasonable. The proposal was that the tax for physicians be raised from $25 to $150. The Society suggested that the privilege tax be reduced for physicians working only part-time and that a physician be exempted from the tax during his first year of practice.

The Washington County Medical Society

The Washington County Medical Society proposed to the Fayetteville City Manager that directives be issued limiting emergency vehicle traffic to regular passenger car traffic rules.

NEW MEMBERS

DR. KENNETH NEW is a new member of the Chicot County Medical Society. Dr. New, a native of Dermott, received his pre-medical education at Arkansas Agricultural and Mechanical College. He was graduated from the University of Arkansas School of Medicine in 1967. He then served his internship at Hillcrest Medical Center in Tulsa, Oklahoma. Dr. New served in the National Guard from 1958 until 1964. Dr. New is associated with Dr. H. W. Thomas at the Dermott Clinic, Dermott, in the general practice of medicine.

Sebastian County Medical Society has accepted DR. VIRGIL N. KENNEDY for membership. Dr. Kennedy received his pre-medical education at the University of Arkansas and the University of Kansas. He was graduated from the University of Kansas School of Medicine in 1932. Dr. Kennedy interned at the Los Angeles County General Hospital. He served 6½ years on active military duty, attaining the rank of Lieutenant Colonel. Dr. Kennedy practiced in Newkirk, Oklahoma, 1934-1941; Gladewater, Texas, 1946; Fort Smith, 1947-1963; Gladewater, Texas, 1964. Dr. Kennedy is in the general practice of medicine at 1120 Lexington Avenue, Fort Smith.

A new member of the Jefferson County Society is DR. LEE A. DEAN.

Dr. Dean is a native of Tonitown, Arkansas. He attended the University of Arkansas in Fayetteville. In 1940, Dr. Dean was graduated from the University of Arkansas School of Medicine. He interned at St. Vincent Infirmary. Dr. Dean completed a residency in psychiatry at the Veterans Administration Hospital in North Little Rock, Arkansas. After a tour of duty with the United States Navy from 1944 to 1946, Dr. Dean practiced in Rogers, Arkansas, where he remained until 1963.

From 1966 to 1968, he was Staff Physician at the Veterans Administration Hospital in Gulfport, Mississippi. He is a member of the American Psychiatric Association.

Dr. Dean is a psychiatrist at the Southeast Arkansas Mental Health Center in Pine Bluff, Arkansas.

DR. ROBERT TERYL BROOKS, JR., has recently been accepted for membership in the Jefferson County Medical Society.

He is a native of Moncla, Louisiana. Dr. Brooks received a B.S. degree from Tulane University and was graduated in 1958 from Tulane University School of Medicine. He interned at the San Diego Naval Hospital in San Diego, California. From 1959 to 1963, he was in residency training in Urology at the Bethesda Naval Hospital in Bethesda, Maryland. He was Chief of Urology at the Portsmouth Naval Hospital in Portsmouth, Virginia from 1966 to 1968.

Dr. Brooks is certified by the American Board of Urology. He is a member of the American Urological Association and the American College of Surgeons.

Dr. Brooks is associated with The Doctors Clinic, 1421 Cherry, Pine Bluff, Arkansas, in the practice of urology.

The Miller County Medical Society has recently added the name of DR. NORRIS L. NEWTON to its membership roll.

Dr. Newton is a native of Ada, Oklahoma. He attended the University of Oklahoma and was graduated from the University of Oklahoma School of Medicine in 1956. Dr. Newton interned at the University of Oklahoma Hospital from 1956 to 1957. He completed a residency at Johns Hopkins Hospital in 1960 and served in the United States Air Force from 1960 to 1965. Dr. Newton has been in the practice of Ophthalmology for three years. He is a Fellow of the American Board of Ophthalmology; Fellow, American Academy of Ophthalmology and Otolaryngology; and a Fellow of the Society of Military Ophthalmology.

He is now practicing Ophthalmology at 317 State Line in Texarkana, Arkansas.

DR. JOHN L. DUPONT is a new member of the Sebastian County Medical Society.

Dr. Dupont is a native of Pulaski, Tennessee. He received a B.A. degree in 1957 from the University of Colorado and was graduated from the University of Colorado School of Medicine in 1959. Dr. Dupont interned at the Sacramento County Hospital, Sacramento, California. He served a residency at the Good Samaritan Hospital in Phoenix, Arizona, from 1960-1961, and at the Denver General Hospital in Denver, Colorado, from 1961-1963. Prior to coming to Arkansas, Dr. Dupont was in private practice in Carlsbad, New Mexico. He is certified by the American Board of Obstetrics and Gynecology. He served in the United States Army from 1966 to 1968.

Dr. Dupont is associated with the Holt-Krock Clinic at 1500 Dodson Avenue in Fort Smith, Arkansas, and specializes in Obstetrics and Gynecology.

The Washington County Medical Society has announced that DR. G. GLEN FINCHER is a new member of that Society.

Dr. Fincher is a native of El Dorado, Arkansas. He attended Hendrix College and received a B.S. degree from the University of Arkansas in 1957. He then entered the University of Arkan-

sas School of Medicine and was graduated in 1960.

Dr. Fincher interned at the Gorgas Hospital in the Canal Zone. He completed a residency in Internal Medicine at the Parkland Hospital in Dallas, Texas, in 1962. Dr. Fincher served in the United States Air Force from 1962 to 1964, at the Clinton-Sherman Air Force Base in Oklahoma. Following military service he completed an Ear, Nose and Throat residency at the Veterans Hospital in Dallas, Texas. He is a member of the Dallas Academy of Ophthalmology and Otolaryngology.

Dr. Fincher is in the practice of Otorhinolaryngology at 102 West Dickson in Fayetteville, Arkansas.

DR. MARTHA HUTSON FINCHER is a new member of the Washington County Medical Society.

Dr. Fincher is a native of Prairie County, Arkansas. She received a B.S. degree from Ouachita College at Arkadelphia in 1953. Dr. Fincher was graduated from the University of Arkansas School of Medicine in 1957. She interned at the Queen's Hospital in Honolulu, Hawaii. Dr. Fincher returned to the University of Arkansas Hospital where she completed a residency in Pediatrics.

Dr. Fincher has held positions as Instructor of Pediatrics at the Gorgas Hospital in the Canal Zone, Chief of the Department of Pediatrics at the Clinton-Sherman Air Force Base in Oklahoma and was in private practice in Dallas, Texas, prior to returning to Arkansas. Dr. Fincher is certified by the American Board of Pediatrics. She is a member of the Dallas Pediatrics Society, American Women's Medical Society and the Pan American Allergy Society.

Dr. Fincher is now at 102 West Dickson in Fayetteville in the practice of General Allergy.

The Craighead-Poinsett County Medical Society has announced that DR. JOHN POWELL PUCKETT, JR. is a new member of that Society.

Dr. Puckett is a native of Perry, Florida. He received a B.S. degree from the Tulane University in 1958, and was graduated in 1961 from the Tulane University School of Medicine. Dr. Puckett interned at the Duval Medical Center in Jacksonville, Florida. He completed a residency at the Jacksonville Hospital. Dr. Puckett served two years in the United States Air Force. Prior to coming to Arkansas, he was in private practice in Jacksonville, Florida.

Dr. Puckett is now in the practice of Obstetrics and Gynecology at 417 East Matthews in Jonesboro, Arkansas.

DR. EUGENE H. TAYLOR has recently been accepted for membership in the Pulaski County Medical Society.

He is a native of Spartanburg, South Carolina. He received a Bachelor of Music degree from Converse College in Spartanburg, South Carolina. Dr. Taylor served in the United States Air Force as a First Lieutenant from 1952 to 1955. He was graduated from the University of Arkansas School of Medicine in 1962. He interned at the University Hospital in Little Rock. From 1963 to 1966, he was in residency training at the University Hospital. Dr. Taylor is an instructor of Medicine at the University Medical Center.

Dr. Taylor is associated with the Little Rock Diagnostic Clinic and specializes in Internal Medicine and Hematology.

The Pulaski County Medical Society has announced that DR. KELSY J. CAPLINGER is a new member of that Society.

Dr. Caplinger is a native of Hope, Arkansas. He received a B.A. degree from Hendrix College in Conway in 1959. He then entered the University of Arkansas School of Medicine and was graduated in 1963. He interned at the University Hospital. Dr. Caplinger's residency work in Pediatrics was at the University of Arkansas Medical Center. He stayed on at the Medical Center for a fellowship in Pediatric Allergy, which he completed in June of 1968. Dr. Caplinger has served as a Captain in the Air National Guard since 1964. He is a member of the teaching staff of the University of Arkansas School of Medicine.

Dr. Caplinger is associated with the Arkansas Allergy Clinic in Little Rock, in the practice of Pediatric Allergy.

BOOK REVIEWS

R. B. Robins, M.D.

"The Lessons of History", Will and Ariel Durant (Simon and Schuster).

The Durants and Arnold Toynbee have furnished contemporary man with tomes regarding history and civilization that are valuable. The recent book by the Durants entitled *"The Lessons of History"* is quite interesting and gives one some considerable food for thought.

Man is an animal with some degree of intelligence and he has been leaving recorded history for the last 3,421 years with no war in only 268 of these years. History reveals little alteration in the conduct of mankind. We now observe a great conflict in the world between capitalism and socialism. The Durants say "The fear of capitalism has compelled socialism to widen freedom, and the fear of socialism has compelled capitalism to increase equality. East is West and West is East, and soon the twain will meet."

Since history has revealed no substantial change in man's nature, all technological advances must be written off as merely new means of achieving old ends. We enlarge our instrumentalities without improving our purposes. We have tremendously developed our means of locomotion and some people use them to facilitate crime and kill our fellow men and ourselves. Note how the speed of planes increases as time goes by, but, as the Durants say, "we are the same trousered apes at two thousands miles an hour as when we had legs." We applaud the cures and advances of modern medicine; we are grateful for the added years that medical science gives us even though sometimes the side effects are a burdensome prolongation of illness, disability and gloom. It is amazing to think of our increased facilities through radio and television to report around the world events of the day. Maybe we should envy our ancestors, whose peace was only gently disturbed by the news of their own village.

There are many questions that we ask ourselves. Have we given ourselves more freedom than our intelligence can digest? Have our laws offered the criminal too much protection against society and state? Are we nearing moral and social disorder? How does our contemporary architecture compare with that of ancient Egypt, or Greece or Rome? Do we have sculptors and painters to compare with Michelangelo and others of ancient times? The same with music and other arts?

Some of the comments made by the Durants make us pause to think. "It is clear that the United States must assume today the task that Great Britain performed so well in the nineteenth century—the protection of Western civilization from external danger. Communist governments have repeatedly proclaimed their resolve to destroy the economy and independence of non-Communist states." Communist propaganda, infiltration and subversion are all around us to see. "Unless this spreading process is halted it is only a matter of time before nearly all Asia, Africa and South America will be under Communist leadership, and Australia, New Zealand, North America and Western Europe will be surrounded by enemies on every side. Should North America, now at the height of its power, accept such a future as inevitable, withdraw within its frontiers, and let itself be encircled by hostile states controlling its access to materials and markets?"

Those who read this book will find plenty of food for thought. Let us put meaning in human existence, regardless of man's follies and crimes of the past which are revealed in history. Let us be proud of the legacy which we have inherited from the past.

Toxicity of Alloys of Ferrochromium

R. Jett, Jr., J. O. Pierce, and K. L. Stemmer (3223 Eden Ave, Cincinnati)

Arch Environ Health 17:27-34 (July) 1968

The transport of trivalent chromium by rat serum proteins was studied by immunoelectrophoretic analysis and autoradiography. It is shown that as the dose of ^{51}Cr (III) in increased, it binds progressively to siderophilin albumin, two alpha proteins, and gamma globulin. The quantity of ^{51}Cr (III) bound to siderophilin after an injection is found to be quite stable over a six-hour period. This method may have practical application in the study of the serum transport of other metals and many other substances that become bound to the plasma proteins.

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: Atrial approximately 280
Ventricular approximately 100

RHYTHM: Atrial flutter with variable block

SIGNIFICANT ABNORMALITIES:

F waves with no intervening base line occur at a rate of 280 with irregular ventricular response.

INTERPRETATION: Abnormal
Atrial flutter with variable block.

COMMENT:
Patient reverted to sinus rhythm following increase in digitalis therapy.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

SMOKING, SPUTUM, AND LUNG CANCER

Chronic bronchitis, as evidenced by chronic cough and daily sputum production over a period of years, was the most significant symptom among men diagnosed as having lung cancer following a mass chest X-ray screening. The relationship between chronic sputum production and lung cancer among tobacco smokers was clear. No cancer was found among nonsmokers.

In connection with a mass miniature radiography screening, the relationship between lung cancer, persistent daily sputum production, and tobacco smoking among men 40 years of age or older was investigated. The men were volunteers from the general public and industry.

The subjects were asked whether they smoked or had smoked and, if so, how much they smoked. They were also asked questions about raising phlegm. If sputum had been produced daily for five years, it was considered a symptom of chronic bronchitis. If abnormalities were observed on X-ray film, the individual was referred for further investigation, and six months later a follow-up was carried out. The chest physician who read the original film had no information on the smoking habits and sputum history of the subject.

LUNG CANCER PROVED

Only volunteers who had lesions confirmed as lung cancer by surgery, biopsy, post-mortem examination, or follow-up were admitted to the study.

Among the 21,579 men in the study, 33 cases of lung cancer were diagnosed. No case was found among nonsmokers. The highest number was among cigarette smokers.

The smoking categories and number of cases of cancer in each were:

Category (Subjects)	*Cases*
Nonsmokers (2,826)	0
Cigarette smokers (11,934)	23
Ex-smokers (4,516)	5
Pipe smokers (2,267)	5

The rates for lung cancer among the cigarette smokers rose from 1.35 per 1,000 persons for light smokers to 2.47 per 1,000 for heavy smokers. The rate for the group as a whole was 1.93 per 1,000. The rate for ex-smokers was 1.10 per 1,000. The majority of former smokers, including the five who had cancer, had smoked cigarettes.

RISK DECLINES FOR EX-SMOKERS

These data support findings of other studies that people who had stopped smoking had a lower risk of cancer than current smokers but a greater risk than nonsmokers. Four of the five former smokers who developed cancer had given up smoking only the year before the X-ray examination, which was not the case with the majority of the ex-smokers. It is possible that some of the ex-smokers had developed cancer while still smoking cigarettes.

The rate of cancer among the pipe smokers was high, 2.21 per 1,000. It may be that previous cigarette smokers were among the current pipe smokers.

In 25 of the 33 lung cancer cases, histologic examinations were made. In 14 persons, the cancer was squamous cell; in five, undifferentiated; and in four, oat cell. Two were adenocarcinomas.

Increased chronic bronchitis mortality with increasing amounts of tobacco smoked has been reported. Several studies indicate that chronic bronchitis and productive cough are both related quantitatively to smoking habits, and the frequency of persistent cough with phlegm has been found to be as high as 42 per cent in heavy cigarette smokers aged 55 to 64 years. In the present series, with its five-year minimum of

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J. Rimington, M.B., Ch.B *British Medical Journal*, March 23, 1968.

sputum production, the percentages were lower, as was the average age.

RATES RELATED TO SPUTUM

The rates of cancer per 1,000 subjects in relation to sputum were as follows: smokers without sputum, 1.30; smokers with sputum, 5.09; ex-smokers without sputum, 0.24; ex-smokers with sputum, 10.13; pipe smokers without sputum, 0.97; pipe smokers with sputum, 13.76.

Lung cancer rates for the subjects with persistent daily sputum are considerably higher than those without sputum in each smoking category. This relationship is also maintained among those with histologically proved cancer, 0.63 for those without sputum and 4.78 for those with sputum. The rates are significant in all categories. (Two cancers among cigarette smokers without sputum were adenocarcinomas, which do not appear to be associated with smoking.)

Since both productive cough and lung cancer are associated with cigarette smoking, it is possible that the high rate of lung cancer among the cigarette smokers with persistent daily sputum for five or more years is due to the association of both conditions with cigarette smoking. In view of this possibility the cigarette smokers have been divided into three consumption categories—light, medium, and heavy—but, irrespective of the amount smoked, the lung cancer rates for those with persistent daily sputum are considerably higher than for those without this symptom.

While a very slow-growing lung cancer could cause chronic cough, it is difficult to believe such a cancer could result in excessive sputum production over a long period of time. None of the volunteers with lung cancer who said they had chronic sputum production had such a respiratory disease as tuberculosis or bronchiectasis to account for the sputum. The reasonable assumption is that the sputum was due to chronic bronchitis.

SMOKING PLUS COUGH

In other studies it has been found that the lung cancer mortality of smokers with a morning cough three years prior to death was three to five times greater than that of those without cough.

It seems clearly indicated that anti-smoking propaganda should be directed at the high-risk bronchitic group, and smokers with a chronic cough or sputum should understand that they are at considerable risk of lung cancer. They should be urged to stop smoking and to seek radiologic supervision.

Many might be sufficiently convinced of the seriousness of their situation to give up smoking. As for the others, early radiologic detection of lung cancer can only serve to improve the chances of a surgical cure, slight though that might be.

Coronary Arterial Spasm

M. A. Demany, A. Tambe, and H. A. Zimmerman (St. Vincent Charity Hosp, Cleveland) *Dis Chest* 53:714-722 (June) 1968

In a series of 750 coronary cinearteriograms, coronary spasm was observed in only seven individuals. At the time of the cinearteriogram, three experienced an attack of chest pain that had all the features of coronary insufficiency before the spasm was relieved by nitroglycerin. One of these patients displayed an acute myocardial injury pattern on the electrocardiogram, and another, a cardiac standstill which responded to external massage. Coronary spasm is probably due to the action of catecholamine on the alpha receptors of the large coronary vessels, whereas myocardial anoxia can still be considered the immediate cause of the cardiac pain. Differences in the symptomatic manifestation occurrring during coronary spasm may be due to the degree of arterial narrowing, to the presence or absence of coronary artery disease, and to individual differences in pain theshold. Coronary spasm may, occasionally, be responsible for an attack of angina pectoris and even sudden death.

December, 1968

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Modelevsky, A. C. .....1004 Wall, Jonesboro 72401, WE 2-3681
Moreland, W. H. ....P. O. 8ox 96, Tyronza 72386, NF
Munos, Louis R. ... 505 East Matthews, Jonesboro 72401, WE 2-8121
Neblett, Donald ....809 Cobb, Jonesboro 72401, WE 5-6012
Oates, Franklin T. .....Lepanto 72354, 475-2327
Peeler, Malcolm O. 211 East Matthews, Jonesboro 72401, WE 2-7496
Plunk, Hermie G. .....135 East Main, Jonesboro 72401, WE 2-1181
Poff, Joseph H. .... .118 East Main, Truman 72482 483-7611
Poole, Grover D. ....605 Southwest Dr., Jonesboro 72401, WE 2-2634
Puckett, John P., Jr. ....417 East Matthews,
Jonesboro 72401, WE 5-3990
Raney, 8ascom P. .....403 E. Matthews, Jonesboro 72401, WE 5-5529
Riggs, Orval E. ....4301 West Markham, Little Rock 72205, MO 4-5000
Robinette, James M. ..... 907 Union, Jonesboro 72401, 932-2423
Rogers, James F. .....806 Jeter Drive, Jonesboro 72401, WE 5-4755
Shanlever, R. C. .....624 South Main, Jonesboro 72401, WE 2-7428
Shepherd, W. F. ....211 East Matthews, Jonesboro 72401, WE 2-7496
Smith, Floyd A., Jr. .....415 West Main, Trumann 72472, 483-6411
Smith, Vestal 8. ..... P. O. 8ox 614, Marked Tree 72365, 358-2811
Smoot, John D. .....224 East Matthews, Jonesboro 72401, WE 2-7458
Sparks, E. 8arrett ....1400 Judy, Jonesboro 72401 (Res.) WE 5-3762
Stroud, Paul T. .....P. O. 8ox 818, Jonesboro 72401, WE 2-8323
Swingle, Charles G. .....105 Nathan Marked Tree 72365, 358-2036
Verser, Joe .....P. O. 8ox 106, Harrisburg 72432, 578-5443
Vollman, Don 8., Jr. ....411 East Matthews,
Jonesboro 72401, WE 2-7430
Webb, James W. 806 South Church, Jonesboro 72401, WE 2-8221
Wilson, Francis M. .....806 Jeter Drive, Jonesboro 72401, WE 2-1987
Wisdom, Durwood ....505 E. Matthews, Jonesboro 72401, WE 2-8121

CRAWFORD COUNTY

Calaway, Robert L. .... Drawer C, Mulberry 72947 997-3941
Edds, M. C. .....1103 Chestnut, Van Buren 72956, GR 4-2361
Hopkins, Ed G. .....1103 Chestnut, Van 8uren 72956, GR 4-2361
Savery, H. W. .....618½ Main Van Buren 72956 GR 4-2131
Thicksten, Jack N. ....164 Fayetteville, Alma 72921, 632-2117

CRITTENDEN COUNTY

Deneke, Milton D. . 300 S. Rhodes, West Memphis 72301, RE 5-1170
Ferguson, T. Murray ....200 South Rhodes
West Memphis 72301, 735-2150
Ford, Robert C., Jr. .... 200 South Rhodes,
West Memphis 72301, RE 5-4610
Hamilton, Ralph 8. ..300 S. Rhodes, West Memphis 72301, RE 5-1170
*Hare, T. S. .... Crawfordsville
Jay, Gilbert D., III .. 200 S. Rhodes, West Memphis 72301, RE 5-4610
Kennedy, Keith 8..... 316 Tyler, West Memphis 72301, RE 5-7680
Lanford, H. G. ....308 S. Rhodes, West Memphis 72301, RE 5-3664
Little, C. J. .. .. Military Service, NF
Lubin, Milton ..... P. O. 8ox 136, Turrell 72384, DI 3-2501
Massey, Lenita C. .....200 S. Rhodes, West Memphis 72301, RE 5-4610
Peeples, Chester W., Jr. 300 S. Rhodes, W. Memphis 72301, RE 5-1170
Pontius, David H., Jr. 300 S. Rhodes, W. Memphis 72301, RE 5-1170
Schoettle, Glenn P. 308 S. Rhodes, West Memphis 72301, RE 5-3664
Smith, Bedford W. .. 300 S. Rhodes, W. Memphis 72301, RE 5-1170
Taylor, C. Herbert .....200 S. Rhodes, W. Memphis 72301, RE 5-4610
Winters, W. Lee .... 1605 2nd Street, Earle 72331, 792-8262
Wright, William J. ..... P. O. 8ox 608, Earle 72331, 792-8756

CROSS COUNTY

Beaton, K. E. ..... 303 East Union, Wynne 72396, 8E 8-2321
Burks, Willard G. ..... 303 East Union, Wynne 72396, 8E 8-2321
Crain, Vance J. ....303 East Union, Wynne 72396, 8E 8-2321
Hayes, Robert A. .....411 South State, Wynne 72396, 8E 8-3261
Hickman, R. L. .....Memphis, Tennessee, NF
Price, Thomas G. .. ..411 South State, Wynne 72396, 8E 8-3261
Young, John H. ....411 South State, Wynne 72396, 8E 8-3261

DALLAS COUNTY

Adams, Carl H. .....Carthage Clinic, Carthage 71725, 254-2211
Atkinson, H. H. ....300 Cadiz, Fordyce 71742, 352-2537
Delamore, John H. .....1100 West 3rd, Fordyce 71742, 352-2771
Dobson, Jack T. .....110 North Clifton, Fordyce 71742, 352-3151
Estes, E. E. . ...205 E. 3rd, Fordyce 71742, 352-2626
Howard, Don G. .....110 North Clifton, Fordyce 71742, 352-3151
Taylor, George D. .....Sparkman Clinic, Sparkman 71763, 678-2406

DESHA COUNTY

8iscoe, Goree .....207 South Elm, Dumas 71639, 382-4425
8lackwell, O. G. .....145 West Waterman, Dumas 71639, EV 2-4878
Harris, Howard R. ....207 South Elm, Dumas 71639, EV 2-4425
Lazenby, A. W. .....145 West Waterman, Dumas 71639, EV 2-4878
Moss, Swan 8. .....202 North 4th, McGehee 71654, CA 2-3151
Rands, Howard A. ....415 East Farmer, Dumas 71639 (Res.) EV 2-4313
Robinson, Guy U. .....207 South Elm, Dumas 71639, EV 2-4425
Turney, Lonnie R. 2nd and Pine Streets, McGehee 71654, CA 2-4044

DREW COUNTY

Binns, Van C. .....201 East Trotter, Monticello 71655, EM 7-3531
Busby, A. K. .....816 North Hyatt, Monticello 71655, EM 7-3246
Holder, J. 8., Jr. .....V. A. Hospital, Little Rock 72206, FR 2-8361
Hyatt, C. Lewis .....515 North Main, Monticello 71655, EM 7-5393
Price, J. P. .... 216 South Main, Monticello 71655, EM 7-5251
Wallick, Paul A. . .....216 South Main, Monticello 71655, EM 7-5251

FAULKNER COUNTY

Archer, C. A., Jr. ..... 919 Locust, Conway 72032, FA 9-2946
8anister, 8. F., Jr. ....1300 North Parkway, Conway 72032, FA 9-3824
8anister, 8ob G. .. ... 1300 North Parkway, Conway 72032, FA 9-3824
8enafield, Robert 8. .....919 Locust, Conway 72032, FA 9-2946
Clark, Robert L. .....810 Parkway, Conway 72032, FA 9-8313
Daniel, Sam V. .....574 Locust, Conway 72032, FA 9-6111
Downs, J. H. .....P. O. 8ox 56, Vilonia 72173, (Res.) NF
Dunaway, Edwin L. ..... . 919 Locust, Conway 72032, FA 9-2946
Gordy, L. F., Jr. . ...552 Locust, Conway 72032, FA 9-6881
Lieblong, Keller ....1300 North Parkway, Conway 72032, FA 9-3824
Lyford, Joseph H. .....919 Locust, Conway 72032, FA 9-2946
Poindexter, Ann G. .....919 Locust, Conway 72032, FA 9-2946
Poindexter, Douglas A. .. ..919 Locust, Conway 72032, FA 9-2946
Taylor, Robert L. ....810 Parkway, Conway 72032, FA 9-3815

FRANKLIN COUNTY

Ferrell, G. H., Jr. .....1103 Chestnut, Van 8uren 72956, GR 4-2361
Gibbons, David L. .. .. Gibbons Clinic, Ozark 72949, 667-2285
Gibbons, W. H. ....Gibbons Clinic, Ozark 72949, 667-2285
Long, C. C. .....110 West Commercial, Ozark 72949, 667-2146
Roberts, William J. .....P. O. 8ox 428, Charleston 72933, 965-2672

GARLAND COUNTY

Adams, Frank M. .....236 Central, Hot Springs 71901, NA 3-8751
Arnold, William O. ....1315 Central, Hot Springs 71901, NA 4-1207
Atkinson, Robert H. . 236 Central, Hot Springs 71901, NA 3-6101
8ennett, R. V. .....236 Central, Hot Springs 71901, NA 3-9762
8lack, T. N. .... 133 Oakwood, Hot Springs 71901 (Res.) NA 3-2156
8ohnen, Loren O. .....236 Central, Hot Springs 71901, NA 3-6694
8racken, Ronald J. ..505 West Grand, Hot Springs 71901, NA 4-4478
8rewer, Howell W. .....Memphis, Tennessee, NF
8urrow, Thomas E. .....236 Central, Hot Springs 71901, NA 3-8110
8urton, Frank M. ....101 Whittington, Hot Springs 71901, NA 4-5411
Chamberlain, Joe W. .....330 Sixth Street,
Hot Springs 71901, NA 3-4477
Chamberlain, Warren W. 330 6th St., Hot Springs 71901, NA 3-4477
Chenault, H. Clay .....Route 4, 8ox 442,
Hot Springs 71901 (Res.) RO 7-2196
Clardy, Edgar K. .....P. O. 8ox 850, Hot Springs 71901, NA 4-1281
Coffey, George C. ..... 236 Central, Hot Springs 71901, NA 3-2731
Collier, T. J., Sr. .....214 Garden, Hot Springs 71901 (Res.) NF
Daniel, R. L. .....State Hospital, Benton 72015, SP 8-1111
Dembinski, T. Henry.....804½ Central, Hot Springs 71901, NA 3-9781
Devine, J. C. .....505 W. Grand, Hot Springs 71901, NA 3-9216
Dodson, John W., Jr. .....505 W. Grand,
Hot Springs 71901, NA 3-4541
Durham, Thos. M., Jr. ..505 W. Grand, Hot Springs 71901, NA 3-7717
Eisele, Martin .....101 Whittington, Hot Springs 71901, NA 4-5411
Fotioo, George J. ..... 236 Central, Hot Springs 71901, NA 3-5121
French, James H. ....101 Whittington, Hot Springs 71901, NA 4-5411
Garner, O. P. .....1705 Central, Hot Springs 71901, NA 3-3521
Garratt, Charles E. .... 236 Central, Hot Springs 71901, NA 3-2691
Goetze, Dorothy ....104 Curve St., Hot Spgs. 71901 (Res.) NA 3-4913
Goodrum, William A. 236 Central, Hot Springs 71901, NA 3-7031
Graham, Richard F. ....505 W. Grand, Hot Springs 71901, NA 3-4391
Gray, W. E. . ...236 Central, Hot Springs 71901, NA 3-6694
Haggard, John L. ....101 Whittington, Hot Springs 71901, NA 4-5411
Hebert, Gaston A. ....Rehabilitation Center,
Hot Springs 71901, NA 4-4411
Hill, Robert L. .... 236 Central, Hot Springs 71901, NA 3-9581
Hoyt, Jerry L. .....328 Quapaw, Hot Springs 71901, NA 4-4581
Jackson, Haynes G. ..238 Woodbine, Hot Springs 71901, NA 3-6628
*Jackson, W. W. .... Hot Springs
King, Jack A. .....231 Central, Hot Springs 71901, NA 3-1603
King, Leeman H. . .....236 Central, Hot Springs 71901, NA 3-1545
Klugh, Walter G., Jr. ..505 W. Grand, Hot Springs 71901, NA 3-9216
Klugh, Walter G., Sr. . .....238 Woodbine,
Hot Springs 71901, NA 3-4511
Lee, W. R. ....236 Central, Hot Springs 71901, NA 3-2518
Lewis, Robert L. .....236 Central, Hot Springs 71901, NA 4-2354
Lovell, Clawrence R. ..414 Albert Pike, Hot Springs 71901, NA 4-3606
McCluer, Shirley M. ....Rehabilitation Center,
Hot Springs 71901, NA 4-4411
McConkie, Stuart 8. ..505 W. Grand, Hot Springs 71901, NA 3-7717
McCrary, Robert F. ....505 W. Grand, Hot Springs 71901, NA 4-5477
McFarland, Louis R. ...211 Hobson, Hot Springs 71901, NA 4-5752
McMahan, J. C. .... 306 Albert Pike, Hot Springs 71901, NA 4-2111
Martin, L. G. .....236 Central, Hot Springs 71901, NA 3-6491
Mashburn, William R. ....236 Central, Hot Springs 71901, NA 3-4453
Muckleroy, Robert N. .....Rehabilitation Center,
Hot Springs 71901, NA 4-4411
Murray, Du8ose .. 505 West Grand, Hot Springs 71901, NA 3-7717
Pappas, Deno P. ....101 Whittington Ave., Hot Springs, NA 4-5411
Parkerson, Carl R. ... . 1421 Central, Hot Springs 71901, NA 4-3341
Parkerson, C. W. ..... 1421 Central, Hot Springs 71901, NA 4-3341
Patterson, Ralph M. .... 231 Central, Hot Springs 71901, NA 3-1603
Power, Allyn R. .....236 Central, Hot Springs 71901, NA 3-3102
Purdum, E. A. .....: 236 Central, Hot Springs 71901, NA 3-6161

Queen, George P. ....236 Central, Hot Springs 71901, NA 3-3373
Reed, Lon E. ....1315 Central, Hot Springs 71901, NA 4-1207
Rosenzweig, Joseph L. .... 236 Woodbine, Hot Springs 71901, NA 3-6664
Rowland, E. Driver ....110 Hawthorne, Hot Springs 71901, NA 3-5581
Sammons, Vernon E., Jr. .... 236 Central, Hot Springs 71901, NA 3-9581
Scully, Francis J. 16 Conway Rd., Hot Springs 71901 (Res.) NA 3-3726
Smith, Euclid M. ...P. O. Drawer T, Hot Springs 71901, NA 3-4243
Smith, Oliver A. ....236 Central, Hot Springs 71901, NA 3-1121
Smith, William K. ....236 Central, Hot Springs 71901, NA 3-2171
Springer, M. R., Jr. .... 236 Central, Hot Springs 71901, NA 3-6694
Stough, D. B. .... 236 Central, Hot Springs 71901, NA 3-6921
Stough, D. B., III ....236 Central, Hot Springs 71901, NA 4-3201
Trieschmann, John W. 236 Woodbine, Hot Springs 71901, NA 3-6664
Wade, H. King, Jr. .... 231 Central, Hot Springs 71901, NA 3-1603
Wade, H. King, Sr. .... 231 Central, Hot Springs 71901, NA 3-1603
Woodcock, William A. .... Temple, Texas, NF
Wright, Jack ....211 Hobson, Hot Springs 71901, NA 3-6677
Wright, Paul O. ....612 Albert Pike, Hot Springs 71901, NA 3-2255
Yohe, Charles D. ....236 Central, Hot Springs 71901, NA 3-2517

GRANT COUNTY

Clark, Curtis B. ....200 South Rose, Sheridan 72150, 942-3155
Irvin, Jack M. ....205 High, Sheridan 72150, 942-3171
Kelly, Miles F. ....108 South Arch, Sheridan 72150, 942-4152
Paulk, Clyde D. ....200 South Rose, Sheridan 72150, 942-3155

GREENE-CLAY COUNTY

Andrews, Allie E., Jr. .... Memphis, Tennessee
Baker, A. J. ....Community Methodist Hospital, Paragould 72450, CE 9-9165
Baker, Clark M. ....115 West Court, Paragould 72450, CE 6-6356
Bradsher, Omer E. 901 W. Kingshighway, Paragould 72450, CE 6-8765
Clopton, O. H. ....104 West 4th, Rector 72461, 595-3377
Crow, Asa A. ....320 South 10th, Paragould 72450, CE 6-3508
Duckworth, Gordon L., Jr. ....Piggott Hospital, Piggott 72454, 598-2237
Duckworth, Hillard R. ....Piggott Clinic, Piggott 72454, 598-2237
Finch, Robert M. ..1001 Kingshighway, Paragould 72450, CE 6-7623
Futrell, J. Byron .... Rector 72461, 595-3355
Harper, Bland R. ....P. O. Box C, Monette 72447, 486-5719
Isele, A. Frank ....Memphis, Tennessee
Lawson, J. Larry ....216 W. Court Street, Paragould 72450, 239-9631
McGaughey, Solon ....1701 N. Bryant, Little Rock 72204 (Res.)
McKelvey, E. D. ....112 West Court, Paragould 72450, CE 6-8716
Martin, Richard O. ....Community Methodist Hospital, Paragould 72454, CE 6-7733
Muse, Jerry L. ....Piggott Hospital, Piggott 72454, 598-2237
Northum, Charles S. ....Houston, Texas
Page, Bill C. ....602 West 2nd, Corning 72422, 857-3541
Purcell, Donald I. ....4301 West Markham, Little Rock 72205, MO 4-5000
Shedd, Leonus L. ....901 West Kingshighway, Paragould 72450, CE 6-8765
Watson, Samuel D. ....7th & Kingshighway, Paragould 72450, CE 6-8591
Williams, Jacob M., 1001 W. Kingshwy., Paragould 72450, CE 6-7623

HEMPSTEAD COUNTY

Branch, James W. ....426 South Main, Hope 71801, PR 7-3471
Harris, C. Lynn ....820 South Main, Hope 71801, PR 7-2131
Harris, Lowell O. ....820 South Main, Hope 71801, PR 7-2131
Holt, Forney G. ....420 East 2nd, Hope 71801, PR 7-6722
McKenzie, Jim ....P. O. Box 445, Hope 71801, PR 7-2321
Martindale, James G. ....116 South Main, Hope 71801, PR 7-3464
Martindale, Jud B. ....116 South Main, Hope 71801, PR 7-3464
Royal, Jack Lee ....P. O. Box 97, Hope 71801, PR 7-2321
Wright, George H. .... 420 East 2nd, Hope 71801, PR 7-6722

HOT SPRING COUNTY

Barrier, W. F. ....Arkansas State Hospital, Benton 72105
Berry, Morgan C. ....725 East Page, Malvern 72104, (Res.) ED 2-5131
Brashears, Larry ....1524 Potts Street, Malvern 72104, ED 2-5245
Cobb, Russell W. .... 1420 Potts, Malvern 72104, ED 2-3112
Cole, John W. ....725 East Page, Malvern 72104, ED 2-5641
Ellis, C. Randolph ....1004 South Main, Malvern 72104, ED 2-6941
Kersh, Noah B. ....1415 West Smith, Malvern 72104, ED 7-7533
McCray, Raymond V. ..214 East Highland, Malvern 72104, ED 2-2704
Peters, Claude F. .... 1420 Potts, Malvern 72104, ED 2-2521
Vaughan, John A. ....115 East Highland, Malvern 72104, ED 2-2371
White, Robert H. ....1004 Dyer, Malvern 72104, 332-3664
Wise, John D. ....1219 South Main, Malvern 72104, ED 2-6961

HOWARD-PIKE COUNTY

Dildy, Edwin V., Jr. ....112 W. Hempstead, Nashville 71852, TI 5-1933
Floyd, G. J., Jr. .... P. O. Box 279, Murfreesboro 71958, 285-3341
Holt, H. H. ..Mineral Springs Highway, Nashville 71852, TI 5-2406
Jones, William J. ....P. O. Box 49, Glenwood 71943, 356-3921
Smith, Uthel L. Mineral Springs Highway, Nashville 71852, TI 5-3880
Ward, Hiram T. ..510 N. Washington, Murfreesboro 71958, 285-2491
Wesson, John H. ....115 West Howard, Nashville 71852, TI 5-4676
Wilmoth, Marion H. ....14th & Leslie, Nashville 71852, TI 5-4780

INDEPENDENCE COUNTY

Beck, Carl T. ....P. O. Box 37, Mountain View 72560, 269-3434
Calaway, W. H. North Arkansas Clinic, Batesville 72501, 793-5251
Churchill, C. A. 204 East 6th, Batesville 72501 (Res.) 793-5194
Farmer, Joseph F. ....Memphis, Tennessee
Gary, Paul ....P. O. Box 31, Batesville 72501, 793-2321
Hathcock, Alfred H. ....P. O. Box 310, Batesville 72501, 793-3671
Jeffery, Paul H. .... Route 4, Batesville 72501, 793-2667
Johnston, O. J. T. ..P. O. Box 856, Batesville 72501 (Res.) 793-2371
Lytle, Jim E. ....North Arkansas Clinic, Batesville 72501, 793-5251
Monroe, Howard U. ....Mountain View 72560, 269-3236
Raney, Troy ....Medical Clinic, Cave City 72521, 283-5762
Slaughter, Bob L. ....P. O. Box 1411, Batesville 72501, 793-2540
Smith, Bob G. ....North Arkansas Clinic, Batesville 72501, 793-5251
Stalker, James M. .... P. O. Box 1506, Batesville 72501, 793-5205
Tatum, Harold M. .... P. O. Box 147, Melbourne 72556, 368-4344
Taylor, Chaney W. ....North Arkansas Clinic, Batesville 72501, 793-5251
Taylor, Charles A. ....North Ark. Clinic, Batesville 72501, 793-5251
Walker, A. T. ....Mammoth Springs 72554, 625-3232
Wyatt, Finnis Q. ....North Ark. Clinic, Batesville 72501, 793-5251

JACKSON COUNTY

Ashley, John D., Jr. ....2nd and Laurel, Newport 72112, JA 3-6721
Green, Roger L. ....2nd and Laurel, Newport 72112, JA 3-6721
Harris, M. Haymond ....1205 McLain, Newport 72112, JA 3-5871
Jackson, Jabez F. ....1205 McLain, Newport 72112, JA 3-5871
Norris, R. O. .... P. O. Box 124, Tuckerman 72473, 349-2250
Stanfield, Wayne ....1513 Malcolm, Newport 72112, JA 3-3321
Sutter, L. O'Neal ....Jamison Building, Tuckerman 72473, 349-2783
Williams, Thomas E. ....2nd and Laurel, Newport 72112, JA 3-6721
Wright, John C. ....1205 McLain, Newport 72112, JA 3-5871

JEFFERSON COUNTY

Anderson, Charles W. ....1108½ Poplar, Pine Bluff 71601, JE 4-8651
Arrington, Thell S. ....2410 West 28th, Pine Bluff 71601, JE 6-0769
Atnip, Gwyn ....1111 West 15th, Pine Bluff 71601, JE 5-3551
Barksdale, Barbara A. ....Barksdale Clinic, Rison 71665, FA 5-6224
Blackwell, Banks .... Camp LeJeune, North Carolina
Brooks, Robert Teryl, Jr. ..1421 Cherry St., Pine Bluff 71601, 535-2200
Bryant, R. Frank ....1112 Linden, Pine Bluff 71601, JE 4-4352
Burford, Thomas G. ....106 Pennsylvania, Pine Bluff 71601 (Res.) NF
Burroughs, Clement D. ....1108½ Poplar, Pine Bluff 71601, JE 4-8651
Crane, Henry A., Jr. ....1107 Cherry, Pine Bluff 71601, JE 5-0833
Crenshaw John ....1421 Cherry, Pine Bluff 71601, JE 5-2200
Cunningham, T. J., Jr. ....300 West 6th, Pine Bluff 71601, JE 4-4723
Dean, Lee A. ....1110 West 11th Street, Pine Bluff 71601, JE 4-1834
Dickins, Robert D. ....1003 Cherry, Pine Bluff 71601, JE 4-8141
Ellis, Michael ....Jefferson Hospital, Pine Bluff 71601, JE 5-6800
Fendley, Claude E. ....1108½ Poplar, Pine Bluff 71601, JE 4-8651
Flowers, Cleon A. ....Masonic Temple, Pine Bluff 71601, JE 4-5523
Glasscock, R. E. ....709 West 6th, Pine Bluff 71601, JE 4-0413
Hart, J. Clyde, Jr. ....1310 Cherry, Pine Bluff 71601, JE 4-6210
Henderson, Francis M. ....1310 Cherry, Pine Bluff 71601, JE 4-6210
Hutchison, E. L. ....1724 W. 42nd Avenue, Pine Bluff 71601, JE 5-1562
Hyman, Carl E. ....Masonic Temple, Pine Bluff 71601, JE 4-3365
Irwin, Raymond A. .... 1421 Cherry, Pine Bluff 71601, JE 5-2200
James, William Joe ....2510 Cherry, Pine Bluff 71601, JE 5-5400
Jenkins, Bobby J. ....1710 West 42nd, Pine Bluff 71601, JE 5-6644
Jenkins, Mary E. ....1306 West 42nd, Pine Bluff 71601, 535-5522
*Lawlah, Clyde A. ....Pine Bluff
McDonald, Robert L. ....1108½ Poplar, Pine Bluff 71601, JE 4-8651
Maynard, Ross E. ....National Building, Pine Bluff 71601, JE 4-5732
Meredith, Wm. R. 1716 W. 42nd Avenue, Pine Bluff 71601, JE 5-8727
Miller, Donald L. 1710 W. 42nd Avenue, Pine Bluff 71601, JE 5-6644
Milligan, Monte C. ....Jefferson Hospital, Pine Bluff 71601, JE 5-6800
Monroe, S. C. .... 1421 Cherry, Pine Bluff 71601, JE 5-2200
Morris, Harold J. ....1030 Poplar, Pine Bluff 71601, JE 4-0822
Nash, Carl W. ....1724 Doctor's Drive, Pine Bluff 71601, JE 4-2261
Nixon, William R. .... 709 West 6th, Pine Bluff 71601, JE 4-0413
Payne, Virgil L. ....802 West 5th, Pine Bluff 71601 (Res.) JE 4-5618
Perry, V. Bryan ....1722 W. 42nd Avenue, Pine Bluff 71601, JE 5-4141
Pierce, J. R., Jr. ..1712 W. 42nd Avenue, Pine Bluff 71601, JE 5-3443
Raney, Oliver C. 1720 West 42nd Avenue, Pine Bluff 71601, JE 4-5861
Reed, E. Frank, Jr. .... 916 Cherry, Pine Bluff 71601, JE 5-0121
Reed, Ulysses S. .... Masonic Temple, Pine Bluff 71601, JE 4-6910
Reid, Charles W. ....1113 Cherry, Pine Bluff 71601, 534-0240
Rhyne, James T. .... 1310 Cherry, Pine Bluff 71601, JE 4-6210
Rice, James B. ....1306 West 42nd, Pine Bluff 71601, JE 5-5522
Roberson, George V., Jr. ....1421 Cherry, Pine Bluff 71601, JE 5-2200
Robinette, Joseph S. ....1722 Doctor's Dr., Pine Bluff 71601, JE 5-2372
Russell, Allen R. ....1024 Poplar, Pine Bluff 71601, JE 5-2252
Simmons, Calvin R. ....1714 W. 42nd Ave., Pine Bluff 71601, JE 5-3213
Smith, Robert J. ....1111 Cherry, Pine Bluff 71601, JE 5-1880
Stern, Howard S. ....1315 Linden, Pine Bluff 71601, JE 4-0342
Sullenberger, A. G. ....1726 West 42nd, Pine Bluff 71601, JE 4-4407
Talbot, George B. ....1421 Cherry, Pine Bluff 71601, JE 5-2200
Tisdale, Alfred D., Jr. ....1515 W. 42nd, Pine Bluff 71601, JE 5-6800
Townsend, Thomas E. ....1310 Cherry, Pine Bluff 71601, JE 4-6210
Tracy, Clyde ....1421 Cherry, Pine Bluff 71601, JE 5-2200
Walker, John K. ....1107 Cherry, Pine Bluff 71601, JE 5-0831
Wilkins, Walter J., Jr. ....1421 Cherry, Pine Bluff 71601, JE 5-2200
Wineland, H. L. ....1108 Poplar, Pine Bluff 71601, JE 4-3561
Wooley, Ralph R. ....P. O. Box 7267, Pine Bluff 71601, JE 5-2142

JOHNSON COUNTY

Callaway, James R. .... 4716 Hampton Road, North Little Rock 72116 (Res.) SK 3-7628
Kolb, James M., Jr. ....Tulsa, Oklahoma
Kolb, James M., Sr. ....P. O. Box 472, Clarksville 72830, 754-2007
Manley, Robert H. .. 307 East Main, Clarksville 72830, 754-3820
Scarborough, W. R. ....109 North Fulton, Clarksville 72830, 754-2512
Shrigley, Guy P. ....416 Sevier, Clarksville 72830, 754-2043
Underwood, Clyde ....201 Rogers Street, Clarksville 72830, 754-8333

LAFAYETTE COUNTY

Harrison, R. H. ..... Lewisville 71829, 921-4333
Lee, Willie J. ..... P. O. Box 276, Stamps 71860, 533-4461

LAWRENCE COUNTY

Cruse, E. J. ..... P. O. Box 116, Black Rock 72415, B7B-6209
Dickey, A. B. ..... 704 N.W. 3rd, Walnut Ridge 72476 (Res.)
Elders, J. B. ..... 321 S. W. 3rd, Walnut Ridge 72476, 886-3162
Hickman, James H. .. 421 S. W. Third, Walnut Ridge 72476, 886-6222
Hughes, Joe E. .... Highway 25 West, Walnut Ridge 72476, 886-5123
Joseph, Ralph ..... Highway 25 West, Walnut Ridge 72476, 886-3211
Whittington, J. J. III ..... Hwy. 2S W., Walnut Ridge 72476, B86-35S2

LEE COUNTY

Dozier, Floyd S. ..... 29 North Poplar, Marianna 72360, 295-2107
Fields, E. C. Nowell .... Highway I South, Marianna 72360, 295-2616
Gray, Dwight W. ..... 110 West Chestnut, Marianna 72360, 295-3131
Hays, William C., Jr. ..... P. O. Box 192, Marianna 72360, 295-2323
McLendon, Mac ..... P. O. 8ox 536, Marianna 72360, 295-2711

LINCOLN COUNTY

Freeland, James W. ..... P. O. Box 608, Star City 71667, 628-4226
Petty, Richard C. ..... P. O. 8ox 638, Star City 71667, 628-4292

LITTLE RIVER COUNTY

Armstrong, James D. ..... P. O. Box 697, Ashdown 71822, TW 8-3306
Peacock, N. W., Jr. ..... P. O. Box 667, Ashdown 71822, TW 8-3306
Shelton, Joseph G., Jr. .... P. O. Box 697, Ashdown 71822, TW 8-3306

LOGAN COUNTY

Chalfant, Charles H. .. .... 507 East Main, 8ooneville 72927, 675-2455
Jones, W. Duane ..... State Sanatorium 72954, 675-2121
McConnell, Samuel P. .... 111 West Main, Booneville 72927, 675-3232
Parker, B. G. ..... 121 East 3rd, Booneville 72927, 675-2101
Redman, John W. ..... Denton, Texas
Robins, Rowland R. ..... State Sanatorium 72954, 675-2121
Smiley, George W. .. .. State Sanatorium 72954, 675-2121
Smith, Charles McD. ..... 710 North Express, Paris 72855, 963-2191
Smith, James T. ..... 710 North Express, Paris 72855, 963-2191

LONOKE COUNTY

Gartman, J. F. ..... Court Street, Carlisle 72024, 552-7561
Harris, Willie R. ..... England Hospital, England 72046, 842-2686
Holmes, B. E. ..... 305 West Front, Lonoke 72086, OR 6-6560
Inman, Fred C., Jr. ..... Court Street, Carlisle 72024, 552-7575
McEntire, H. E. ..... Fort Roots V A Hospital,
No. Little Rock 72114, FR 2-8361
Martin, J. A. ..... P. O. 8ox 99, Lake City 72437, 237-4640
Osborne, Phillip ..... Yellville 72687, 449-6013
Schumann, Gerald M. Des Arc Gen. Hosp., Des Arc 72040, 256-4312
Washburn, C. Yulan .... 111 West Main, Cabot 72023, 224-2141

MILLER COUNTY

Bransford, Robert M. ..... 401 East 5th, Texarkana 75501, 773-2121
Burnett, J. W. ..... 414 Hazel, Texarkana 75501, 774-7301
Burroughs, James C. .... 401 East 5th, Texarkana 75501, 773-2121
Chappell, Robert H. .. P. O. 8ox 1288, Texarkana 75501, 214 794-5943
Davis, Terry R. .... 1400 College Drive, Texarkana 75501, 214 793-5671
Dodge, John McLaurin P. O. Bx. 1409, Texarkana 75501, 214 792-7151
Edmonson, Retia L. ..... 916 Main, Texarkana 75501, 214 793-5592
Faris, John C. ..... 2201 Dudley Avenue, Texarkana 75501, 772-1113
Goesl, Andrew G. ..... 119 East 6th, Texarkana 75501, 774-4702
Harrell, Wm. B., Jr. .. 317 State Line, Texarkana 75501, 214 792-8231
Hughes, Paul ..... 401 East 5th, Texarkana 75501, 773-2121
Jones, John Walter ..... 401 East 5th, Texarkana 75501, 773-2121
Kemp, Karlton H. ..... 408 Hazel, Texarkana 75501, 774-5181
Kirkpatrick, R. R. ..... 1806 Hickory St., Texarkana 75501 (Res.)
Kittrell, J. B. ..... 1001 Main, Texarkana 75501, 214 794-6107
Laws, J. K. ..... St. Michael Hosp., Texarkana 75501, 774-7297
Leslie, Charles L. ..... 315 East 5th, Texarkana 75501, 772-0231
Lowe, Betty Ann .... 401 East 5th, Texarkana 75501, 773-2121
Newton, Norris L. .... 317 State Line, Texarkana 75501, 214 792-8541
Peebles, Larry M. ..... 1400 College Drive, 214 793-5671
Pickett, R. W. ..... 226 East 6th, Texarkana 75501, 774-5622
Rodgers, N. L. ..... 401 East 5th, Texarkana 75501, 773-2121
Rushing, Louis U. .. .... P. O. Box 1912, Texarkana 75501, 214 792-1191
Smith, William D. ..... 119 East 6th, Texarkana 75501, 772-0111
Teasley, Gerald H. ..... 401 East 5th, Texarkana 75501, 773-2121
Wakefield, Elmer G. P. O. Bx. 2035, Texarkana 75501 (Res.) 772-0853
Wicker, Eugene H. .... St. Michael Hosp., Texarkana 75501, 733-2651
Wilhelm, Frieda ..... Shreveport, Louisiana
*Williams, J. F. ..... Texarkana
Yarbrough, Charles P. ..... 1102 Main, Texarkana 75501, 214 793-5608
Young, Mitchell ..... 1001 Main, Texarkana 75501, 214 792-8264

MISSISSIPPI COUNTY

8all, E. H. ..... P. O. Box 226, Blytheville 72315, PO-3-4121
Beasley, Joseph E. ..... Mississippi County Health Department,
Blytheville 72315, PO 3-0337
Brock, Charles C., Jr. . S27 North 6th, Blytheville 72315, PO 3-8118
Campbell, Charles E., Jr. .. 519 N. 6th, Blytheville 72315, PO 3-0855
Cole, C. R. .... S19 North 6th, Blytheville 72315, PO 3-1554
Elliott, J. Q. ..... 209 West Ash, Blytheville 72315, PO 3-4548
Fairley, Eldon ..... P. O. Box 71, Osceola 72370, LO 3-2686
Fairley, Julian ..... P. O. Box 71, Osceola 72370, LO 3-2686
Go, Alex S. Y. ..... Hughes 72348, (Res.) 339-2526
Godley, M. L. ..... Alexandria, Louisiana
Gratz, John F., Jr. Osceola Mem. Hosp., Osceola 72370, LO 3-2611
Green, W. O., Jr. ..... 903 Chickasawba, Blytheville 72315, PO 3-6802
Hard, John W. ..... 527 North 6th, Blytheville 72315, PO 3-8118
Hart, Sybil R. ..... Chickasawba Hosp., Blytheville 72315, PO 3-1617
Hart, Wade A. ..... Chickasawba Hosp., Blytheville 72315, PO 3-1617
Holcomb, C. E. .. .. 511 North 6th, 8lytheville 72315, PO 3-3922
Hubener, L. L. ..... 509 Hutson Street, Blytheville 72315, PO 2-2021
Hubener, Louis F. ..... Gainesville, Florida
Johnson, I. R. .... 1042 W. Main, Blytheville 72315, (Res.) PO 2-234S
Johnson, R. L. .... P. O. Box 414, Blytheville 72315, (Res.) PO 3-6201
Jones, Herbert ..... 529 North 10th, Blytheville 72315, PO 3-8032
Lawrence, Jesse A. ..... Adams Street, Wilson 72395, OL S-2411
Massey, Lorenzo D. ..... 307 West Hale, Osceola 72370, LO 3-6242
Osborne, Merrill J. . .... 527 North 6th, Blytheville 72315, PO 3-811B
Polk, J. T. ..... Keiser 72351, 526-2121
Pollock, George D. ..... 608 West Lee, Osceola 72370, LO 3-2608
Rainwater, W. T. ..... 527 North 6th, Blytheville 72315, PO 3-8118
Rhodes, R. F. ..... 608 West Lee, Osceola 72370, LO 3-2608
Rodman, T. N. ..... P. O. Box 260, Leachville 72438, S39-6337
Shaneyfelt, E. A. ..... P. O. Box 468, Manila 72442, 561-4421
Sims, Hunter C., Jr. .... 529 North 10th, 8lytheville 72315, PO 3-0521
Sims, Hunter C., Sr. ..... 1111 West Ash, Blytheville 72315, (Res.)
Taylor, G. Wayne ..... P. O. 8ox 290, Leachville 72438, 539-2228
Utley, F. E. .... 515 North 6th, Blytheville 72315, PO 3-4575
Webb, James Jackson (Jack) .... 520 West Main,
Blytheville 72315, PO 2-2131
Workman, W. W. .... 527 North 6th, Blytheville 72315, PO 3-8118

MONROE COUNTY

Dalton, M. L. ..... 510 Main, Brinkley 72021, RE 4-4161
David, N. C., Jr. . ..... 108 West Ash, Brinkley 72021, RE 4-2212
McKnight, Edward D. ..... Brinkley Bank Building,
Brinkley 72021, 734-4234
Pupsta, Benedict F. ..... P. O. Box 432, Clarendon 72029, 747-3321
Stone, Herd E., Jr. . .... P. O. Box 221, Holly Grove 72069, 462-3393
Walker, Walter L. 114 S. New Orleans, Brinkley 72021, RE 4-3242
Williams, J. P., Jr. .... 127 S. New Orleans, Brinkley 72021, RE 4-1331

NEVADA COUNTY

Avery, Charles D. .... 427 East 6th, Prescott 71857, 887-2625
Crow, H. Blake ..... 327 East 2nd, Prescott 71857, 887-3846
Hairston, Glenn G. .... 317 East 3rd, Prescott 71857, 887-2211
Harrell, L. J. ..... 115 East 2nd, Prescott 71857, 887-2312
Hesterly, Charles A. ..... New York, New York
Hesterly, Jacob B. ..... 419 East 6th, Prescott 71857, 887-3328

OUACHITA COUNTY

Dalton, Perry J. 415 Hospital Dr., S.W., Camden 71701, TE 6-5013
Dedman, J. L., Jr. 415 Hospital Dr., S.W., Camden 71701, TE 6-5013
Drewrey, L. E. ..... 530 Jefferson St., S.W., Camden 71701, TE 6-5058
Ellis, Joseph L. ..... 2200 Maul Road, N.W.,
Camden 71701, (Res.) TE 6-2146
Ellis, Bruce ..... Stephens 71764, 786-5755
Fohn, Charles H. 110 Harrison Ave., S.W., Camden 71701, TE 6-5088
Guthrie, James .... 530 Jefferson St., S.W., Camden 71701, TE 6-5058
Harville, Victor L., Jr. ..... Daingerfield, Texas
Hawley, James W. ..... P. O. Box 38, Camden 71701, TE 6-5710
Hout, Judson N. .... 530 Jefferson St. S.W., Camden 71701, TE 6-5058
Jameson, J. B., Jr. .... 110 Harrison, S.W., Camden 71701, TE 6-5088
Killough, Larry R. ..... 530 Jefferson, S.W. Camden 71701, TE 6-5058
Lewis, R. C. .... P. O. Box 67S, Camden 71701, TE 6-5753
Livingston, Bill B. ..... 223 Jefferson Street, Camden 71701, TE 6-6487
Meek, Tom J. .... 415 Hospital Drive, S.W., Camden 71701, TE 6-5013
Miller, John H. . 415 Hospital Dr., S.W., Camden 71701, TE 6-5013
Ozment, L. V. ... 530 Jefferson St., S.W., Camden 71701, TE 6-5058
Pruitt, Willard H. ..... 416 Hospital Drive, Camden 71701, TE 6-5744
Robins, R. B. ..... Chicago, Illinois
Thorne, A. E. ..... Ouachita Hospital, Camden 71701, TE 6-8595

PHILLIPS COUNTY

Barrow, John H. ..... Oakland Avenue, Helena 72342, HI 4-2622
8ell, L. J. Pat ..... 626 Poplar, Helena 72342, HI 4-2163
Berger, A. A. .... 801 Perry, Helena 72342, HI 4-2781
Biggs, William W. ..... Helena Hospital, Helena 72342, HI 4-6411
8utts, James W. .... 708 McDonough, Helena 72342, HI 4-2006
Capes, Bernard ..... P. O. 8ox 2398, West Helena 72390, JU 5-2621
Chrestman, R. L., Jr. .... 631 Oakland Ave., Helena 72342, HI 4-3294
Ellis, William A., Jr. ..... 603 Porter, Helena 72342, HI 4-3037
Faulkner, Henry N. ..... 513 Porter, Helena 72342, HI 4-7401
Hill, William K. ..... Elaine 72333, 827-3461
Kirkman, C. M. T. ..... 1105 Perry, Helena 72342, HI 4-2712
Kurts, Evan J. ..... P. O. Box 2336, West Helena 72390, JU 5-2144
McCarty, C. P. .... 513 Porter, Helena 72342, HI 4-7401
Miller, Robert D., Jr. ..... 616 Elm, Helena 72342, HI 4-2531
Oldham, H. B. ..... P. O. Box 2538, West Helena 72390, JU 5-7581
Paine, W. T. ..... 671 Oakland Avenue, Helena 72342, JU 5-6413
Tonymon, Daniel ..... P. O. Box 278, Marvell 72366, 829-2721
Wise, James E., Jr. ..... P. O. Box 546, Marvell 72366, 829-2386

POLK COUNTY

Austin, Calvin D. ..... 606 Mena, Mena 71953, EX 4-1441
Hefner, David P. ..... 518 Janssen, Mena 71953, 394-3550
Redman, Pierre ..... 513 Mena, Mena 71953, EX 4-2277
Rogers, Henry N. .... 600 West 7th, Mena 71953, EX 4-3344
Wood, John P. .... 907 Mena, Mena 71953, EX 4-4221

POPE-YELL COUNTY

Ashcraft, Ted E. ....809 West Main, Russellville 72801, 967-2156
Bachman, David S. ..... S11 West Main, Russellville 72801, 967-2345
Draeger, Louis A. .... Danville 72833, 495-2252

Franklin, Robert M. 511 West Main, Russellville 72801, 968-2345
Gardner, Ellis ....P. O. Box 400, Russellville 72801, 967-2242
Gavlas, Frank E. 310 North 2nd, Dardanelle 72834, 229-4225
Harris, Walter P. .522 Main, Danville 72833, 495-2714
Heidgen, Martin F.....1808 West Main, Russellville 72801, 968-1017
Henry, J. Arnold 511 West Main, Russellville 72801, 968-2345
Jackson, William E. 119 Spruce, Lewisville 71829, 921-4249
King, William Ernest, Jr. .....511 West Main, Russellville 72801, 968-2345
Lane, Walter H., Jr. .....625 Water, Dover 72837, 331-2828
*Linton, Arthur C. .....Hector
Lowrey, Douglas H. ....809 West Main, Russellville 72801, 967-2156
Luker, Jerome .....505 Union, Dardanelle 72834, 229-4172
Malone, George E. .....733 West Main, Atkins 72823, 641-2992
Martin, Damon G. H. .....Ola 72853, 489-5801
Maupin, James L. .....505 Union Street, Dardanelle 72834
Millard, Roy I. .....511 West Main, Russellville 72801, 968-2345
Mobley, Max J. .....111 North El Paso, Russellville 72801, 967-2242
McNamara, William L. ..V.A. Hospital, Little Rock 72206, FR 2-8361
Pennington, James O. .... P. O. Box 157, Ola 72853, 489-5241
Ring, Gene D. .....505 Union, Dardanelle 72834, 229-4172
Teeter, Brooks R. 500 S. Glenwood, Russellville 72801 (Res.) 967-4545
Teeter, Stanley D. .....511 West Main, Russellville 72801, 968-2345
Webb, Lewis A. ....209 Locust, Dardanelle 72834, 229-3329
Wilkins, Charles F. ....511 West Main, Russellville 72801, 968-2345
Williams, David M. .....809 West Main, Russellville 72801, 967-2156

PULASKI COUNTY

Abbott, William Wood.....St. Vincent Infirmary, Little Rock 72205, MO 4-4261
Abernathy, Robert S. .....4301 West Markham, Little Rock 72205, MO 4-5000
Abraham, James H. ....900 N. Univ., Little Rock 72207, MO 4-3951
Adametz, John H. ....Donaghey Bldg., Little Rock 72201, FR 5-5547
Alford, Dale .....115 East Capitol, Little Rock 72201, 664-5100
Allen, E. Stewert .. 413 N. University, Little Rock 72205, MO 3-8309
Allen, Hoyt R. .....Donaghey Bldg., Little Rock 72201, FR 2-5518
Allen, John E., Jr. 5512 W. Markham, Little Rock 72205, MO 4-1000
Allen, Thomas Hugh.....500 South University, Little Rock 72205, MO 4-4383
Armstrong, Howard M. 12th & Bishop, Little Rock 72202, FR 2-5626
Ault, C. C. .....V. A. Hospital, North Little Rock 72114, FR 2-8361
Austin, L. K., Jr. .....6213 Lee Ave., Little Rock 72205, MO 4-3901
Autry, Daniel H. ..1900 N. Tyler, Little Rock 72207 (Res.) MO 3-7293
Baber, John C., Jr....500 S. University, Little Rock 72205, MO 4-2434
Bailey, H. A. Ted, Jr. 1610 West 3rd, Little Rock 72201, FR 2-1811
Baldwin, Deane G. ..... 6213 Lee Ave., Little Rock 72205, MO 4-3901
Barnhard, Fay M. .....1120 Marshall, Little Rock 72202, FR 4-9568
Barnhard, Howard J. .....4301 West Markham, Little Rock 72205, MO 4-5000
Barron, Edwin N., Jr. 5008 Kavanaugh, Little Rock 72207, MO 4-1566
Bauer, Frank M. .... 500 S. University, Little Rock 72205, MO 4-2245
Bearden, James R. .....1612 Maryland, Little Rock 72201, FR 4-3351
Becquet, N. J. .....115 W. Sixth, Little Rock 72201, FR 5-4419
Belknap, Melvin L. ....1801 Maple, No. Little Rock 72114, FR 2-0119
Bennett, Eaton W. ....Ark. State Hosp., Little Rock 72205, MO 6-0181
Berry, Frederick B. ....500 S. University, Little Rock 72205, MO 6-0222
Betts, Charles S. .....500 S. University, Little Rock 72205, MO 3-9169
Beverly, Nolan F. .....St. Vincent Inf., Little Rock 72205, MO 4-4261
Bishop, William Bruce .....400 Pershing Boulevard, No. Little Rock 72114, FR 4-2245
Bizzell, Ross.....Exchange Bldg., Little Rock 72201, FR 6-2309
Black, Hal R., Jr. ....Univ. Tower Bldg., Little Rock 72204, MO 4-4200
Black, Millard W. 705 North Ash, Little Rock 72205, MO 3-5413
Blakely, R. M. 211 Crystal Ct., Little Rock 72205(Res.) MO 3-2562
Bost, Roger B. ....4301 West Markham, Little Rock 72205, MO 4-5000
Bowker, John H. 4301 West Markham, Little Rock 72205, MO 4-5000
Bradburn, Curry B., Jr. .....University Tower Building, Little Rock 72204, MO 4-4200
Brenner, Geo. H., Jr. ....1612 Marvland, Little Rock 72202, FR 4-3351
Briggs, B. P. ..... 500 S. University, Little Rock 72205, MO 4-4117
Briggs, Dale D. .....1220 No. Garfield, Little Rock 72207, (Res.)
Brinkley, Roy A. ....1111 Bishop, Little Rock 72202, FR 5-1177
Brizzolara, A. J. .....500 S. University, Little Rock 72205. MO 4-4381
Broach, R. Fred .....12th and Bishop, Little Rock 72202, FR 4-7467
Brown, Martha M. .....2014 Boulevard, Little Rock 72204, (Res.) MO 3-7697
Brown, T. Duel .. 1120 Marshall, Little Rock 72202, FR 5-3376
Brown, Willis E. 4301 West Markham, Little Rock 72205, MO 4-5000
Buchanan, F. R. ..500 South University, Little Rock 72205, MO 4-4324
Buchanan, Gilbert A. .....500 South University, Little Rock 72205, MO 4-4117
Buchman, Joseph A. 500 S. University, Little Rock 72205, MO 6-0222
Bumpas, Joe H. .....St. Vincent Inf., Little Rock 72205, MO 4-4261
Burger, Robt. A., Ark. Bapt. Med. Ctr., Little Rock 72205, FR 4-3351
Busby, John V. .....1201 Bishop, Little Rock 72202, FR 4-7467
Byrd, Lucas M., Jr. ....36 Lake Shore Drive, Little Rock 72204 (Res.) LO 5-6046
Calcote, Robert A. Donaghey Bldg., Little Rock 72201, FR 4-5969
Caldwell, Fred T. ....4301 W. Markham, Little Rock 72205, MO 4-5000
Calhoun, Joseph D. .....500 S. Univ., Little Rock 72205, MO 4-3914
Campbell, Gilbert S. .... 4301 West Markham, Little Rock 72205, MO 4-5000
Campbell, James W., St. Vincent Inf., Little Rock 72205, MO 4-3914
Caplinger, Kelsy J. ....4001 W. Capitol Little Rock 72205, MO 4-1596
Carnahan, Robert G. .....Arkansas State Hospital, Little Rock 72205, MO 6-0181
Carruthers, F. Walter, Donaghey Bldg., Little Rock 72201, FR 5-3372
Cazort, Alan G. ....4001 W. Capitol. Little Rock 72205, MO 4-1596
Chakales, Harold H. 4301 W. Markham, Little Rock 72205, MO 4-5000
Chandler, Billy M. .....406 Pershing Blvd., North Little Rock 72114, FR 2-5278
Cheairs, D. B. .....1624 Maryland, Little Rock 72202, FR 4-2272
Choate, Hoyt L. ..... 1120 Marshall, Little Rock 72202, FR 2-2125
Christeson, Wm. W. ....Donaghey Bldg., Little Rock 72201, FR 6-2409
Christian, John D. ..5520 W. Markham, Little Rock 72205, MO 6-9431
Chudy, Amail ..... 1801 Maple, No. Little Rock 72114, FR 2-0119
Church, B. L. ....321 Maple, No. Little Rock 72114, FR 4-7796
Church, Marion M. .... 410 Pershing Blvd., North Little Rock 72114, FR 5-1106
Clark, Richard B. 4301 W. Markham, Little Rock 72205, MO 4-5000
Cohen, Louis A. .....Omaha, Nebraska
Cook, Raymond C. ..... 601 Scott, Little Rock 72201, FR 5-8273
Cooper, James O. 4301 W. Markham, Little Rock 72205, MO 4-5000
Cooper, William G. 500 S. University, Little Rock 72205, MO 6-0149
Cope, Ellis P. .....Donaghey Bldg., Little Rock 72201, FR 4-8884
Cornett, James K. ..... 5905 R Street, Little Rock 72207, MO 3-9415
Cosgrove, K. W., Jr. .....516 Scott, Little Rock 72201, FR 4-6338
Craig, Marion S., Jr. 500 S. University, Little Rock 72205, MO 6-0106
Crews, J. Travis ....4316 W. Markham, Little Rock 72205, MO 4-2585
Cross, J. B. ....500 S. University, Little Rock 72205, MO 6-0126
*Crow, Jan W. .....Jacksonville
Cull, S. T. W. ..1800 N. Jackson, Little Rock 72207, (Res.) MO 3-8009
Cullen, Philip T. .....500 S. Univ., Little Rock 72205, MO 4-4171
Cummins, Bryce 31 Broadmoor Dr., Little Rock 72204 (Res.) LO 5-7450
Cutler, Otis E. .....4 Eastbrook, Little Rock 72205, 225-6709
Daughety, J. D. .....303 Wayland Drive Springdale 72764, (Res.) PL 1-8232
Davis, Malcolm W. ..V. A. Hosp.,No. Little Rock 72114, FR 2-8361
Dean, Gilbert O.....Donaghey Bldg., Little Rock 72201, FR 5-5543
Deer, Philip James, Jr.....601 Scott, Little Rock 72201, FR 5-8273
Dilday, Thos. F., Jr. 500 S. University, Little Rock 72205, MO 6-0381
Dillaha, Calvin J. ....500 S. University, Little Rock 72205, MO 4-4161
Dodge, Eva F.....17 Barbara Cr., Little Rock 72204, (Res.) MO 6-9150
Donaldson, J. K. ....101 West 24th, Little Rock 72206, FR 2-7546
Downs, J. W. .....500 S. University, Little Rock 72205, MO 6-5922
Downs, Ralph A. 5512 W. Markham, Little Rock 72205, MO 4-1762
Dulaney, Frank M., Jr. ....1122 Marshall, Little Rock 72202, FR 4-9568
Dulaney, Mary W....4301 W. Markham, Little Rock 72205, MO 4-5000
Dungan, W. T.....8th & Wolfe, Little Rock 72202, FR 6-4621
Durham, James W. ..... 112 N. Bailey, Jacksonville 72076, 982-2125
Eardley, Jack ....6605 Marguerite Lane, Little Rock 72205, 666-7045
Easley, Edgar J.....State Health Dept., Little Rock 72201, FR 4-6361
Eberle, Walter Gilbert, II .....University Tower Building, Little Rock 72204, MO 4-5884
Farris, Guy R.....6213 Lee Ave., Little Rock 72205, MO 4-2115
Fein, Norman N. ....Waldon Building, Little Rock 72201, FR 4-8441
Fielder, Charles R. .....406 Pershing Blvd., North Little Rock 72114, FR 6-3426
Fitzgibbon, Carney, Jr. .....410 South Martin, Little Rock 72205, (Res.) MO 6-8861
Flack, James V., Jr. 814 N. University, Little Rock 72205, MO 3-9474
Flanigan, Stevenson .....4301 West Markham, Little Rock 72205, MO 4-5000
Fletcher, Elizabeth D. .....4313 West Markham, Little Rock 72205, MO 6-0181
Fletcher, T. M. .....500 S. University, Little Rock 72205, MO 4-3021
Floyd, Bill G. .....1120 Marshall, Little Rock 72202, FR 2-2125
Foster, Julian L. .....3500 S. Univ., Little Rock 72204, LO 2-4838
Fowler, Shelton F. ....Ark. State Hosp., Little Rock 72205, MO 6-0181
Fraiser, Lacy P. ....Univ. Tower Bldg., Little Rock 72204, MO 4-4200
Fraunfelder, F. T. ..4301 W. Markham, Little Rock 72205, MO 4-5000
Fulmer, H. Ray .....Donaghey Bldg., Little Rock 72201, FR 4-1649
Fulmer, John M. ....5410 W. Markham, Little Rock 72205, MO 4-3142
Fulton, William L. .....513 Main, No. Little Rock 72114, FR 5-2433
Gay, Ellery C., Jr. 5326 W. Markham, Little Rock 72205, MO 4-1118
Gibbins, Jack C.....Tanglewood Shopping Center, Little Rock 72207, MO 6-8712
Gillespie, A. Tharp, 500 S. University, Little Rock 72205, MO 4-3838
Glenn, Wayne B. . 4301 W. Markham, Little Rock 72205. MO 4-5000
Glover, William C. ....1612 Maryland, Little Rock 72202, FR 6-6241
Good, Henry H. .....12th and Bishop, Little Rock 72202, FR 4-7467
Gordon, Vida F. ....4301 W. Markham, Little Rock 72205, MO 4-5000
Gosser, Bob L. .....516 Pershing, No. Little Rock 72114, FR 6-2991
Graham, G. Grimsley.....5322 West Markham, Little Rock 72205, MO 3-9433
Graupner, Kathryn I. V. A. Hosp., No. Little Rock 72114, FR 2-8361
Gray, Edwin F. .....Donaghey Bldg., Little Rock 72201, FR 6-1321
Greifenstein, F. E....4301 W. Markham, Little Rock 72205, MO 4-5000
Greutter, John E., Jr. ..Donaghey Bldg., Little Rock 72201, FR 2-6139
Grimes, H. Austin .....P. O. Box 7117, Little Rock 72205, 666-9491
Growdon, James H. 500 S. University, Little Rock 72205, MO 4-4146
Hagler, James L. ....500 S. University, Little Rock 72205, MO 4-4377
Hall, Alastair D. . ....500 S. University, Little Rock 72205, MO 4-0027
Hamilton, Wilburn M. Donaghey Bldg., Little Rock 72201, FR 4-8633
*Hara, Masauki .....Little Rock
Harper, Ernest H. ....400 Pershing Square, North Little Rock 72114 FR 4-2245
Harrel, J. A., Jr. .....811 N. Grant, #5, Little Rock 72205, 666-0560
Harris, Michael N. ....400 Pershing Blvd., North Little Rock 72114, FR 4-2245
Harris, William T. .....500 S. Univ., Little Rock 72205, MO 4-3914
Harrison, A. Vale ....Waldon Bldg.. Little Rock 72201, FR 4-3815
Harville, William E. .....Ark. Baptist Med. Ctr., Little Rock 72201, FR 4-3351
Hawley, Harold B.....Donaghey Bldg., Little Rock 72201, FR 5-4111
Hayes, Jas. Donald ..5324 W. Markham, Little Rock 72205, 666-9442
Hayes, J. Harry, Jr. 500 S. University, Little Rock 72205, MO 6-2811
Headstream, James W. ....500 S. Univ., Little Rock 72205, MO 4-4364
Hearnsberger, Henry G., Jr. .....4313 West Markham, Little Rock 72205, MO 6-0181
Hedges, Harold H. ..... 814 N. Univ., Little Rock 72205, MO 3-9474
Hefley, Bill F. ..... 4001 W. Capitol, Little Rock 72205, MO 4-1596
Henker, Fred O., III 4301 W. Markham, Little Rock 72205, MO 4-5000
Henry, Charles R. 500 S. University, Little Rock 72205, MO 4-4191
Henry, G. Morrison .....400 Pershing Blvd., North Little Rock 72114, FR 4-2245
Henry, John F., Jr. .....516 Scott, Little Rock 72201, FR 4-6338
Henry, Robert L., Jr. 6213 Lee Ave., Little Rock 72205. MO 4-4044
Herron, John T. .....State Health Dept., Little Rock 72201, FR 4-6361
Hickey, Joseph P..... P. O. Box 2856, Little Rock 72203, MO 4-2496
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Hollenberg, Henry....500 S. University, Little Rock 72205, MO 4-4747

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Holmes, Glen M. .....Address Unknown
Holmes, Harlan C. ..... 1120 Marshall, Little Rock 72202, FR 2-5040
Holt, L. G. .....5324 W. Markham, Little Rock 72205, 666-9442
Honeycutt, Thomas D. ..... 509 Cross, Little Rock 72201, FR 6-1116
Honeycutt, Wesley Mage .....500 S. University,
Little Rock 72205, MO 4-4161
Hood, Robert W.....500 S. University, Little Rock 72205, MO 4-4161
Hoover, Paul W. .....1120 Marshall, Little Rock 72202, FR 4-0789
Howard, John G., Jr. 500 S. University, Little Rock 72205, MO 3-1120
Hudgins, Paul T. .....1120 Marshall, Little Rock 72202, FR 2-7502
Hundley, John M. .....412 Cross, Little Rock 72201, FR 5-5338
Hutson, Harold G. .....1000 Wolfe, Little Rock 72202, FR 5-2446
Ish, G. W. S., Sr. .....Century Bldg., Little Rock 72201, FR 2-7025
Jackson, Geo. W., Ark. State Hosp., Little Rock 72205, MO 6-0181
Jackson, Morris A. ....1304 Wright Ave., Little Rock 72206, FR 4-7940
Jansen, G. Thomas . 500 S. University, Little Rock 72205, MO 4-4161
Johnson, Henry D. .....500 S. Univ., Little Rock 72205, MO 4-4171
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Little Rock 72205, MO 4-3904
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Jones, William N. ....500 S. University, Little Rock 72205, MO 4-0418
Jordan, William K. .....500 S. Univ., Little Rock 72205, MO 3-6353
Jouett, W. Ray ..... Donaghey Bldg., Little Rock 72201, FR 5-5547
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Kagy, John K.....8609-F W. Markham, Little Rock 72205, CA 5-2591
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Kennedy, Charles H. .....3115 Kennedy Blvd.,
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Kilbury, M. J., Jr. ....500 S. University, Little Rock 72205, MO 4-1322
Kilbury, M. J., Sr. .....Donaghey Building,
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Kirby, Jesse M. .....6924 Baucum Pike,
North Little Rock 72117 (Res.), WI 5-3055
Kittler, Frederick J. 4001 W. Capitol, Little Rock 72205, MO 4-1596
Kolb, Agnes .....1612 Maryland Ave., Little Rock 72202, FR 2-3491
Kolb, W. Payton .....1120 Marshall, Little Rock 72202, FR 2-3325
Kozberg, Oscar ....Ark. State Hosp., Little Rock 72205, MO 6-0181
Kreth, K. M. .....5800 W. Markham, Little Rock 72205, MO 3-9441
Kumpuris, Frank G. 415 N. University, Little Rock 72205, MO 4-1521
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Kuykendall, Sam J. ..500 S. University, Little Rock 72205, MO 4-2736
Lamb, William A. .....4001 West 11th,
Little Rock 72204 (Res.), MO 3-1452
Lane, John W. .....1612 Maryland, Little Rock 72202, FR 4-3351
Langston, Harold D. .....1612 Maryland, Little Rock 72202, FR 4-3351
Laurens, John .....501 N. University, Little Rock 72205, MO 4-0390
Lawson, Mason G.....701 W. Markham, Little Rock 72201, FR 4-4311
Lee, J. Fred .....W. Markham at Tyler, Little Rock 72205, MO 4-3904
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Levy, Jerome S. ....500 So. University, Little Rock 72205, MO 4-4181
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Logue, Richard M. 601 No. University, Little Rock 72205, MO 6-0144
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McCracken, John D. 5512 W. Mkham., Little Rock 72205, MO 4-1000
McCrary, George A. .....112 N. Bailey, Jacksonville 72076, 982-2125
McKenzie, Charles N. ..... 412 Cross, Little Rock 72201, FR 5-5338
McMillin, Lamar .....1311 Louisiana, Little Rock 72202, FR 4-6531
McMillion, Stephen D. 1800 Maple, N. Little Rock 72114, FR 2-3575
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Means, Paul N. ..... 1120 Marshall, Little Rock 72202, FR 2-7502
Miles, David A. .....V. A. Hospital, Little Rock 72206, FR 2-8361
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Miller, Forrest B., Jr. .....3500 S. Univ., Little Rock 72204, LO 2-4838
Miller, Harold N. ....Port Charlotte, Florida
Milner, E. L. .....500 S. University, Little Rock 72205, MO 4-4318
Mitchell, George K. .....P. O. Box 2181, Little Rock 72203, FR 4-7401
Mobley, Jack E. ....4301 W. Markham, Little Rock 72205, MO 4-5000
Molholm, Hans B. ....Ark. State Hosp., Little Rock 72205, MO 6-0181
Moore, Jim J. .. .. 500 S. University, Little Rock 72205, MO 6-5466
Moore, Rex N. ....813 Marshall Rd., Jacksonville 72076, 982-2141
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Morris, Woodbridge E. ....5324 West Markham,
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Morrison, James R. .....St. Vincent Infirmary,
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*Murphy, Horace R. .....Little Rock
Murphy, James E., Jr. ..1800 Maple, No. Little Rock 72114, FR 6-3296
Murphy, Randolph, 4313 W. Markham, Little Rock 72205, MO 6-0181
Napper, George S. .....513 Main, No. Little Rock 72114, FR 5-2433
Nettles, John B.....4301 W. Markham, Little Rock 72205, MO 4-5000
Newbern, David H. ....St. Vincent Inf., Little Rock 72205, MO 4-3914
Nisbett, James M. .....517 E. 7th, Little Rock 72202, (Res.) FR 5-2252
Nixon, Ewing M. ..... 1000 Wolfe, Little Rock 72202, FR 5-2446
Norton, Joseph A. ....Donaghey Bldg., Little Rock 72201, MO 4-3914
Oates, Gordon P. 1612 Maryland Ave., Little Rock 72202, FR 4-9332
Ogden, Mahlon D. .....4601 Woodlawn, Little Rock 72205, 664-0769
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O'Neal, Walter H. ....1111 Bishop, Little Rock 72202, FR 5-1177
Orr, William S., Jr. ....500 S. Univ., Little Rock 72205, FR 2-3822
Packmore, D. E. .....St. Vincent Inf., Little Rock 72205, MO 4-4261
Padberg, Frank T. ....500 S. University, Little Rock 72205, MO 6-5466
Panos, Theodore C. .....4301 West Markham,
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Pappas, James J. .....1610 W. 3rd, Little Rock 72201, FR 6-3651
Pearce, C. G. .....V.A. Hospital, Little Rock 72206, FR 2-8361
Pehrson, Nils C. ..... 500 S. University, Little Rock 72205, MO 6-0381
Peters, John E. ..... 4301 W. Markham, Little Rock 72205, MO 4-5000
Phillips, Bert L.....1403 Main, No. Little Rock 72114, FR 6-2840
Phillips, Samuel ....Donaghey Bldg., Little Rock 72201, FR 4-9534
Phipps, Woodrow E., Jr. 108 E. 4th, No. Little Rock 72114, FR 4-4821
Pike, John D. .....500 S. University, Little Rock 72205, MO 4-4321
Pollard, Arlee E. .....St. Vincent Inf., Little Rock 72205, MO 4-4261
Pool, Chalmers S. .. ..V. A. Hosp., No. Little Rock 72114, FR 2-8361
Porter, James O., Jr. 500 S. University, Little Rock 72205, MO 4-3838
Price, Ben O. .....500 S. University, Little Rock 72205, MO 4-4166
Pringos, Andrew A. .... Nat'l Old Line Bldg.,
Little Rock 72201, FR 5-3231
Proctor, Clark B. .....V. A. Hosp., No. Little Rock 72114, FR 2-8361
Quittner, Howard ..4301 W. Markham, Little Rock 72205, MO 4-5000
Ramsay, Reginald C., Jr. ....State Board of Health,
Little Rock 72201, FR 4-6361
Rasch, James R. .....900 N. University, Little Rock 72207, MO 4-3951
Read, Raymond C. .....300 East Roosevelt Rd.,
Little Rock 72206, FR 2-8361
Reagan, Grady W.....124 Crystal, Little Rock 72205, (Res.) NF
Reagan, W. Paul .....Detroit, Michigan
Reed, Ewing C., Jr. . .....1119 Bishop, Little Rock 72202, FR 4-3716
Reese, William G. 4301 W. Markham, Little Rock 72205, MO 4-5000
Regnier, George G. .....500 S. Univ., Little Rock 72205, MO 4-3914
Rhinehart, William J. ...St. Vincent Inf., Little Rock 72205, FR 6-1321
Richardson, Robt. E. 500 S. University, Little Rock 72205, MO 4-4321
Richmond, Samuel V. Donaghey Bldg., Little Rock 72201, FR 2-5101
Riegler, Nicholas W., Jr. . 1024 Scott, Little Rock 72202, FR 5-3326
Riegler, Nicholas W., Sr. ..... 3225 Ozark,
Little Rock 72205 (Res.) MO 3-5667
Riggin, John T., Jr. .....4301 W. Markham,
Little Rock 72205, MO 4-5000
Riley, William H. .....3500 S. Univ., Little Rock 72204, LO 2-4838
Ritchie, E. J. .....1401 Main, No. Little Rock 72114, FR 2-5253
Robinson, J. M. ..... Raines Bldg., Little Rock 72201, FR 2-0351
Ross, Robert W. ....4316 W. Markham, Little Rock 72205, MO 4-2585
Ross, S. William ....900 N. University, Little Rock 72207, MO 4-3951
Rothert, Frances C. .....Guatemala City, Guatemala
Rozzell, Allen R. ..... 500 S. University, Little Rock 72205, MO 4-3043
Runnels, Gathel O. ....4313 West Markham,
Little Rock 72205, MO 6-0181
Samuel, John M. ....805 W. 4th, Little Rock 72201, FR 5-6468
Sanderlin, Joseph H. ..Donaghey Bldg., Little Rock 72201, FR 5-7228
Satterfield, John V. ..500 S. University, Little Rock 72205, MO 6-5488
Schneider, Mildred F.....V.A. Hospital, Little Rock 72206, FR 2-8361
Schratz, Bruce E. ..... 1801 Maple, No. Little Rock 72114, FR 2-0119
Schultz, John C. .....900 N. University, Little Rock 72207, MO 4-3951
Schwander, Howard .....1115 Bishop, Little Rock 72202, FR 5-2366
Schwarz, W. J. .....Donaghey Bldg., Little Rock 72201, FR 4-4712
Scruggs, Joe B., Jr. .....1612 Maryland, Little Rock 72202, FR 4-3351
Selakovich, Walter G. ....500 S. University,
Little Rock 72205, MO 6-2824
Sessoms, William D. .....1120 Marshall, Little Rock 72202, FR 4-9568
Shannon, Robert F. ....12th and Bishop, Little Rock 72202, FR 4-7467
Shorey, Winston K. 4301 W. Markham, Little Rock 72205, MO 4-5000
Shuffield, H. Elvin (Secretary) .... 1000 Wolfe,
Little Rock 72202, FR 5-2446
Simpson, N. Henry, Jr. Donaghey Bldg., Little Rock 72201, FR 5-2801
Sipes, Frank M. .....Donaghey Bldg., Little Rock 72201, FR 5-5443
Sloan, James M. .....500 S. Univ., Little Rock 72205, MO 4-3838
Smith, Huie H. .....1517 Main, No. Little Rock 72114, FR 4-7011
Smith, James L. .....623 Woodlane, Little Rock 72201, FR 4-6491
Smith, John McC. ..4000 Woodlawn, Little Rock 72205, MO 6-6570
Smith, John W. .....1415 W. 6th, Little Rock 72201, FR 4-1622
Smith, Mose, III .....5600 W. Markham, Little Rock 72205, MO 3-6313
Smith, Purcell, Jr. .....4001 W. Capitol, Little Rock 72205, MO 4-1596
Smith, Thomas J. ....500 S. University, Little Rock 72205, MO 4-4181
Smith, W. Myers .....3423 Pike St., No. Little Rock 72118, SK 3-3661
Snodgrass, W. A., Jr. Donaghey Bldg., Little Rock 72201, FR 4-2326
Sorrells, R. Barry .....P.O. Box 7117, Little Rock 72205, MO 6-9491
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Springer, Worthie R., Jr. 103 E. 2nd, No. Little Rock 72114, FR 4-2635
Stainton, Robert M. 500 S. University, Little Rock 72205, MO 4-4175
Stanley, Joe Pat. 400 Pershing Sq., No. Little Rock 72114, FR 6-4023
Stathakis, John M. .....V.A. Hosp., No. Little Rock 72114, FR 2-8361
Steele, W. L. .... 5520 W. Markham, Little Rock 72205, MO 6-9431
Stephens, Stacy, R. .....Dallas, Texas
Stephens, Wanda Jean .....12-B Quapaw Towers,
Little Rock 72202, SK 3-5867
Stewart, Bill Dave 415 N. University, Little Rock 72205, MO 4-1521
Stotts, John R. .....5905 "R" Street, Little Rock 72207, MO 3-9415
Stover, A. R. . ...Holbrook, Arizona
Strauss, Alvin W.. Jr. ..Waldon Bldg., Little Rock 72201, FR 2-1828
Stroope, George F.....516 Pershing, No. Little Rock 72114, FR 6-2991
Stuckey, Jas. G. Jr.....500 S. University, Little Rock 72205, MO 4-4383
Sundermann, Richard H. ....4301 W. Markham,
Little Rock 72205, MO 4-5000
Swindoll, Bryant S. ....State Board of Health,
Little Rock 72201, FR 4-6361
Taylor, Eugene H.....900 N. University, Little Rock 72207, MO 4-3951
Taylor, James S. ....4301 W. Markham, Little Rock 72205, MO 4-5000
Teeter, John A.....5804 W. Markham, Little Rock 72205, MO 4-1767
Thomas, Peter O. ....1310 Cantrell Road, Little Rock 72201, FR 4-5703
Thomas, Philip E. .....418 Hall Bldg., Little Rock 72201, FR 2-3829
Thompson, Bernard W. .....4301 W. Markham,
Little Rock 72205, MO 4-5000
Thompson, Lawrence L. .....Missouri-Pacific
Hospital, Little Rock 72201, FR 5-5381
Thompson, Robert M. .....University Tower Building,
Little Rock 72204, 664-2444

Thompson, Samuel B. ....SS20 W. Markham, Little Rock 72205, MO 6-9431
Thorn, Garland Max ....St. Vincent Inf., Little Rock 72205, MO 4-4261
Tolbert, Louis E., Jr. S00 S. University, Little Rock 72205, MO 6-0136
Toombs, Vernon L. S00 S. University, Little Rock 7220S, MO 4-4117
Valentine, Robert G. .....1320 Marshall, Little Rock 72202, FR 4-9S68
Vaughter, W. Roger .....1120 Marshall, Little Rock 72202, FR 4-9S68
Wade, William I., Jr. ..814 N. Univ., Little Rock 72205, MO 3-9474
Wallace, Deane D. ....S00 S. University, Little Rock 72205, MO 4-4377
Wallis, Charles .....5909 Country Club, Little Rock 72207 (Res.), MO 3-2132
Walt, James R. ... S00 S. University, Little Rock 7220S, MO 4-4146
Walters, Richard E. .....4313 West Markham, Little Rock 72205, MO 6-0181
Ward, Joseph P. .....1120 Marshall, Little Rock 72202, FR 2-7S02
Warford, Lloyd R. .....6213 Lee Ave., Little Rock 72205, MO 4-4044
Warford, Walton R. V. A. Hospital, No. Little Rock 72114, FR 2-8361
Washburn, A. M. ....7616 Briarwood, Little Rock 72205 (Res.)
Wassell, John R. .. S305 Kavanaugh, Little Rock 72207, MO 4-1525
Watkins, John G., Jr. Donaghey Bldg., Little Rock 72201, FR 2-7026
Watson, C. Fletcher .....106 South Maple, Little Rock 72205 (Res.)
Watson, Robert.....Donaghey Bldg., Little Rock 72201, FR S-SS47
Weare, John L. .....1120 Marshall, Little Rock 72202, FR 4-9568
Webb, V. T.....701 W. Markham, Little Rock 72201, FR 4-4311
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Wenger, Carl E.....1624 Maryland, Little Rock 72202, FR 4-2272
Westerfield, Frank M., Jr. 1120 Marshall, Little Rock 72202, FR 4-6478
White, Oba B. .....Century Bldg., Little Rock 72201, FR 4-3609
Whitehead, R. H., Jr. Donaghey Bldg., Little Rock 72201, FR 2-2960
Wilbur, E. Lloyd .....Arkansas Baptist Medical Center, Little Rock 72201, FR 4-33SI
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Zell, Lawrence M. .... Donaghey Bldg., Little Rock 72201, FR 4-5158

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*Crow, Edward W. .....Benton
Hogue, F. Paul .....302 W. South, Benton 72015, SP 8-4SII
Hood, Robert H. .....Ark. State Hospital, Benton 72015, SP 8-1111
Jones, Curtis W., Jr. ..... 223 S. Market, Benton 7201S, SP 8-2722
Jones, Curtis W., Sr. ....223 S. Market, Benton 72015, SP 8-2722
Kirk, Marvin N., Jr. ..... 203 W. Carpenter, Benton 72015, SP 8-8264
Lovell, Richard K., Sr., ...4301 West Markham, Little Rock 72205, MO 4-5000
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McNichol, Ronald W.....Ark. State Hosp., Benton 7201S, SP 8-1111
Martindale, J. L. .....321 Short, Benton 72015, SP 8-1124
Mizell, Walter S. .....Ark. State Hosp., Benton 72015, SP 8-1111
Reynolds, M. Wayne.....Lee's Summit, Missouri
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Thorn, H. B., Jr. ..... 302 W. South, Benton 7201S, SP 8-4SII
Viner, Donald L.....212 West Sevier, Benton 7201S, SP 8-1513
Walton, Charles R. .....Montgomery, Alabama
Wright, John D. .....321 Short, Benton 72015, SP 8-1119

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Brooksher, W. R. .. Sta. A., Box 3096, Fort Smith 72901, SU 3-4803
Brown, Byron L. .. 300 N. Greenwood, Fort Smith 72901, SU 3-3604
Brown, James A. ....2702 Berry Ave., Fort Smith 72901, SU S-2636
Cabell, Ben Bryan .....312 South 16th, Fort Smith 72901, SU 2-7921
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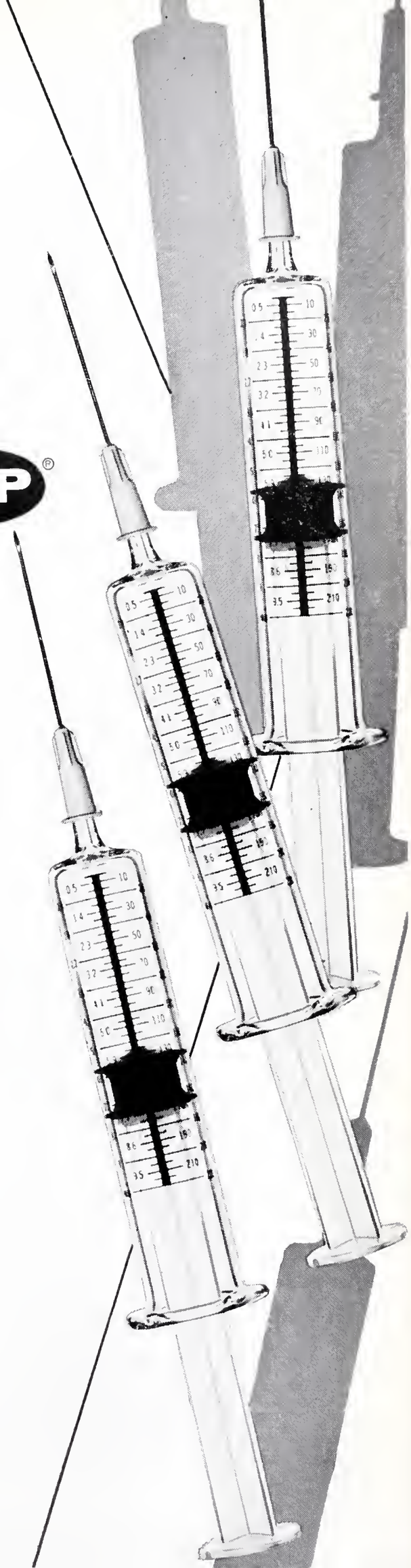

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Cardiorespiratory Adjustments During Exercise In Patients with Healed Myocardial Infarction

John Naughton, M.D.*

Michael T. Lategola, Ph.D**

The determination of an individual's cardiorespiratory capacity for aerobic work has long been considered the province of the exercise physiologist. In recent years, however, the possible importance of physical activity as a potential deterrent to the clinical manifestation of myocardial infarction,[1] and as a warranted therapeutic approach for the cardiac patient[2, 3] has received the attention of cardiologists and epidemiologists. Since the restoration of his patient to an adequate life adjustment is the goal of every physician, a careful assessment of each patient's cardiorespiratory status may be helpful in advising the cardiac patient regarding physical activity.

Evaluation Procedure

Our interest in the cardiorespiratory status of cardiac patients began in 1961 when a group of patients with healed myocardial infarctions negotiated a submaximal multistage treadmill test satisfactorily.[4] Each patient began walking on a level grade at a pace which required twice the oxygen requirement of standing rest and which approximated the usual stroll down a hospital corridor. If the patient negotiated this initial walk satisfactorily, the slope of the treadmill was elevated 3.5 per cent while the speed was held constant at 2.0 mph. Each 3.5 per cent elevation of the treadmill increased the oxygen demand for the patient an additional increment in terms of the resting metabolic state, i.e. 3, 4, 5 etc. times the oxygen requirement of rest. The blood pressure and pulse rate were monitored by the auscultatory method during the last half of each minute while a single lead electrocardiogram was monitored continuously via radiotelemetry. A bipolar lead was employed with the negative pole placed in the right mid-clavicular line of the second intercostal space, and the positive pole in the left posterior axillary line of the eighth intercostal space. This electrocardiographic lead was used, because theoretically it approximated the mean QRS vector, and therefore, should be a highly sensitive indicator of the changes which occurred during exercise. In addition, very little muscle artifact was recorded, and the baselines were relatively stable. The minute ventilation and oxygen uptake were measured every third minute. Walking was terminated either after the eighteenth minute (on a 17.5 per cent grade) or earlier if the patient became subjectively symptomatic or developed serious electrocardiographic alterations. The final two levels of work approximated the oxygen requirements of the Masters two-step test,[5] and were considerably below the peak oxygen intakes recorded in a group of healthy, sedentary middle-aged men.[6] This test was used to determine the cardiorespiratory adaptations of patients in varying states of health and to quantitate longitudinally physiologic alterations which occurred in patients either as a result of additional illness or as a result of changing their activity habits.

Adjustments of Asymptomatic Patients

The initial investigation revealed that a group of non-exercising patients with healed myocardial infarctions had physiologic responses similar to those recorded in a group of healthy non-exercising middle-aged men with whom they were

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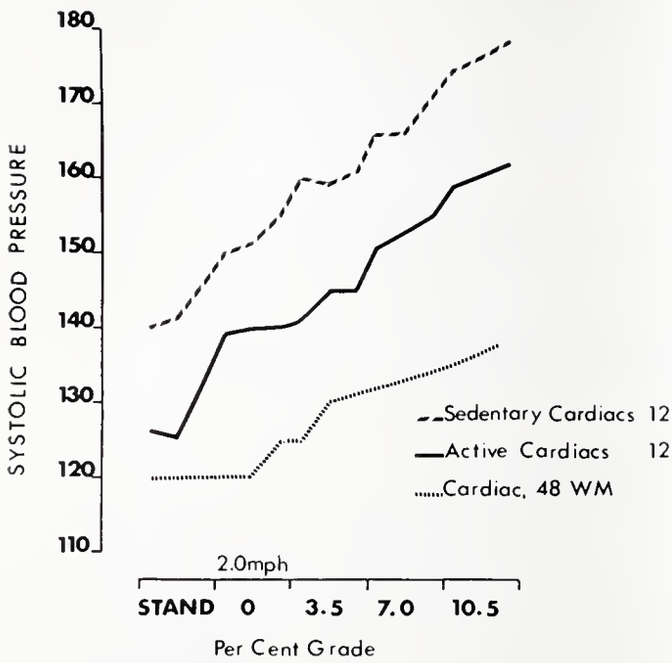

matched for age, height and weight. Their physiologic adjustments were characterized by a gradual increase of systolic blood pressure and pulse rate with each new energy requirement. The pulse rates at an energy requirement approximating 7 times that of rest ranged from 154 to 162 per minute. These findings indicated that the patients adapted to exercise with the same cardiovascular adjustments as healthy people despite the fact that they had clinically demonstrable heart disease. Indirectly, these findings confirmed the earlier observations of Chapman and Fraser[7] who reported that patients with healed myocardial infarction used the same physiologic mechanisms to increase their cardiac output during exercise as healthy individuals. These mechanisms usually include increasing stroke volume, pulse rate and arteriovenous oxygen difference during exercise. These results suggested that, in most cases, patients with essentially normal cardiorespiratory adjustments and a stable electrocardiogram should be encouraged to return to their original employment.

Cardiac Rehabilitation

These initial observations suggested that many cardiac patients had a satisfactory capacity for exercise following recovery, and that their adaptation to physical stress might be altered with a gradually increased regimen of regular physical activity. If favorable changes occurred, then a long term study of the effects of physical activity on physiologic performance and the clinical course of patients with atherosclerotic heart disease appeared warranted. An active rehabilitation program was begun in 1963. Patients either volunteered or were referred by their physicians. The initial evaluation included an appropriate history and physical examination and performance of the multistage treadmill test. The physical activity program was conducted in a gymnasium under close supervision. Initially, each patient's expenditure included short walks, mild calisthenics and throwing a volley ball to one another. The level of physical activity was gradually increased as each person's condition permitted until it included a 0.5 mile jog, 10 to 15 minutes of calisthenics and 30 to 35 minutes of volley ball each day, a workout which utilized between 250 and 300 kcal. Each patient was taught to administer cardiorespiratory resuscitation upon entering the program. Periodically, an electrocardiogram was recorded while the patient performed his routine activities. The active subjects were matched for age, weight and height with healthy subjects and cardiac patients who remained sedentary. All three groups were studied in the same manner with the multistage exercise test at periodic intervals.

At the end of the first year definite differences were noted in the cardiorespiratory adjustments[8] of the active patients whereas the patterns of the non-exercising subjects and patients remained essentially unchanged (figure 1). With regular activity the systolic blood pressure and pulse rate decreased significantly during rest, standing and at each comparable level of energy expenditure. These findings indicated that physical conditioning had led to a reduction in cardiac work and to a greater extraction of oxygen per pulse beat at each comparable treadmill grade. Therefore, their cardiovascular system was apparently more efficient. Whether this efficiency resulted because of increased arterial collateralization in the skeletal muscle bed with a resultant decrease in peripheral vascular resistance, or because of increased myocardial contractility combined with increased coronary arterial collateralization is not known. Previous investigations in experimental animals revealed that the latter two conditions occurred as a result of regular physical activity[9]. The significant reduction in diastolic blood pressure indicated that some reduction in their peripheral resistance may have occurred, a fact which requires confirmation with simultaneous determination of

blood flow and mean arterial pressures. Since only a low level of peak effort was imposed with the multistage treadmill test, the patients' actual aerobic working capacity was not measured. However, the average subject stopped walking at an energy requirement 5 times that of the resting metabolic state when evaluated initially, and after 3 months of training he negotiated the entire test almost effortlessly. The average pulse rate following 3 months of regular activity during the eighteenth minute was 120 per minute compared to 150 per minute earlier. While jogging at a 9-minute/mile pace their recorded pulse rates ranged from 145 to 155 per minute. Since this level of activity required an oxygen intake approximating 38 to 40 ml/kg/min, the subjects had obviously developed a relatively high aerobic capacity while in the program. Once a patient achieved and maintained a constant level of activity from day-to-day, his cardiorespiratory adjustments remained essentially unchanged from test-to-test.

These observations demonstrated that a flexible set of tests is required for an adequate evaluation of patients in varying states of health. The 2.0 mile per hour test was satisfactory for evaluating ambulatory sedentary patients, but an adequate evaluation of the active subject required a test which utilized a faster speed. The energy demands imposed can be varied by using a battery of tests which utilize the same biophysical principles, yet which allow studying the patient while walking at a different pace, i.e. 2.6 and 3.4 mph. In our laboratory, the ambulatory sedentary patient is now evaluated at 2.0 mph; the active subject at 2.6 mph and the athlete at 3.4 mph. All results are tabulated in terms of their response at a given oxygen uptake per kilogram.

Thirty patients participated in the program regularly for three months or longer. During the initial 4½ years of the study one subject died suddenly while an active participant, presumably of a ventricular arrhythmia. He had suffered two episodes of myocardial infarction prior to entering the program, and had been asymptomatic during his six months of conditioning. All except one subject returned to full-time employment, and most of the subjects experienced promotions in their jobs.

Since rehabilitation implies the restoration of a patient to his original or to a new life adjustment following recovery from illness, at some point the rehabilitation program assumed a preventive character, and although difficult to define where one process ceased and the other began, it is obvious that the long-term care of cardiac patients requires a blending of rehabilitation and prevention.

Patients with serious arrhythmias, unstable electrocardiograms, overt congestive heart failure and an inadequate systolic blood pressure elevation during the screening exercise evaluation probably should be deterred from active cardiac rehabilitation while these symptoms persist. Since coronary artery disease is associated with a multitude of varying clinical and physiologic patterns, several types of longitudinal care programs should be established. The one reported here is ideal for a selected group of cardiac patients, but not for all victims of this malady.

Abnormal Cardiovascular Adjustments

Of the 120 patients who performed the test, ten died at a later date. A major difference in the blood pressure response to the increasing physical demands was recorded in several of the patients. While standing, the subjects who eventually died experienced a narrowing of the pulse pressure as compared to supine rest. At the start of exercise, the systolic blood pressure rose more gradually than that recorded in the surviving subjects. Eventually, the characteristic steady elevation was recorded, but the mean systolic blood pressures of this group of subjects never attained the levels recorded in the surviving group of patients. The diastolic blood pressure increased 5 to 7 mm during standing and remained slightly elevated throughout the exercise. The pulse rate response of this group and of the survivors were similar. Only 2 patients in the deceased category had unstable ECGs when evaluated whereas 4 of the survivors had ischemic ST-T wave alterations during exercise. The inadequate elevation of the systolic blood pressure was interpreted as indicating that these patients had a restrictive myocardial involvement which probably prevented an appropriate increase of their stroke volume during exercise. It was speculated that if cardiac output were monitored simultaneously, a reduction of the mean systolic ejection rate (MSER) would probably have been calculated,[10] confirming the suspicion of latent myocardial failure. It may be that a simple documentation of a patient's systolic blood pres-

sure while standing and performing mild levels of exercise has potential diagnostic import. As a group these patients negotiated the multistage test satisfactorily, a finding which further demonstrated the importance of determining the quality of adjustment as well as the amount of work that a patient can perform.

SUMMARY

It can be concluded that:

a. The cardiorespiratory adjustments of patients with healed myocardial infarction can be assessed safely while performing modest levels of exercise.

b. Many of the patients with normal adjustments will develop a state of improved cardiovascular efficiency during a carefully supervised program of gradually regimented physical activity.

c. An inadequate elevation of the systolic blood pressure during exercise (figure 1) may have significant prognostic import, and may indicate inadequate myocardial function.

d. Many of the important clinical questions regarding the value of physical activity for patients with healed myocardial infarction remain to be answered.

ACKNOWLEDGEMENTS

The authors wish to express their appreciation to Peggy Lyne, Kamal Shanbour, Jeannie Poston and Dorothy Fox for their help in conducting these studies.

LEGEND

The mean systolic blood pressures recorded from 12 sedentary cardiac patients, 12 who were active and one patient who died two months after an evaluation were compared. Although statistically significant differences ($p. < 0.05$) were recorded between the sedentary and active patients, the slopes were essentially parallel. Prior to initiating physical activity, the levels of systolic blood pressures of the active patients were quite similar to those recorded in the sedentary group. Much lower systolic blood pressure values with a slightly different slope was recorded in the patient who eventually died. The latter slope may have reflected evidence of restrictive myocardial disease.

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Ozone Exposure and Intelligence Tests

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The effect of ozone on mental functioning was studied by administering intelligence tests to 99 university students. The subjects were divided into treatment (exposed to 0.2 to 0.3 ppm ozone during the writing of the test), placebo, and control (not exposed to ozone) groups. After statistical adjustment had been made for the effects of the covariants (age, sex, anxiety, and initial intelligence test score), no significant difference was found between the groups. This study indicated that exposure to concentrations of 0.2 to 0.3 ppm ozone over a period of 70 minutes had no noticeable effect on mental functioning during the exposure period.

Current Problems in Medical Ethics*

Edwin J. Holman**

Medicine is a convenient and favorite whipping boy. It is criticized from within the profession and without. Just think of all the public charges that have been made against physicians this calendar year.

We can start off with Senator Philip Hart's hearing on physician dispensing. The "investigation" conducted by the Committee which he chairs has produced headlines about the so-called "doctor-merchants." Stories in newspapers and magazines have dwelt upon the conflict-of-interest which exists, and always to patient's detriment it is alleged, when the physician dispenses what he has prescribed. At that time an editorial appeared in the *Louisville Courier Journal* which said, "After a long and careful look at unethical practice by a few physicians who profit through drugs they prescribe, Senator Hart is ready to press for remedial action. It is unfortunate—but essential—that such action be taken now. The AMA once used its own supervision of ethics to limit such abuses . . . But the AMA vacated the field in 1955 and developments in the past decade make it depressingly clear that some men must be checked by laws."

Walter Reuther, in testifying before a Congressional Committee considering amendments to the Social Security Act, took the occasion to charge that physicians violate their patients' trust by prescribing unnecessarily and by operating all too frequently without medical justification.

In a recent issue of *Medical Economics,* fee splitting is discussed and the bold statement is made that the practice not only exists but is rampant in some parts of the country.

A medical journal and the daily press have carried stories about abuses in clinical investigation of new drugs and experimental procedures. Some of this publicity and some of the situations which gave rise to this publicity undoubtedly prompted the introduction of proposals in at least two legislatures to control clinical investigation.

Returning to our national Congress, we find it concerning itself with proposed regulations of clinical laboratories and medical technicians. The news stories emanating from this Congressional activity have painted an ominous picture. The patient, these stories strongly imply, is not receiving either adequate care or his money's worth. Congressmen insist laws have to be enacted to protect the public—to protect it from unscrupulous physicians and others who exploit the patient.

To further this parade of criticism we find lawsuits scattered throughout the country alleging that physicians are being wrongfully denied hospital staff privileges or others alleging that physicians have combined and conspired to restrain the trade of optometrists, podiatrists and commercial laboratories. I think it is unnecessary to do more than mention the fact that half a dozen books have been published this year which have taken the hide off the physician's back and have, as a result, had a satisfactory sale from the authors' point of view.

These instances I've cited of unfavorable publicity do not represent new or novel problems themselves. They are current examples of a continuing problem—a problem that should not exist, a problem which is hard to explain why it exists.

Medicine, which deals with all men in a most personal and intimate way regarding life's most treasured possession, is largely self-regulated. It is most remarkable, when we stop to consider it, to realize that the selection of the medical student, the length and content of medical school curriculum, the establishment and maintenance of internships, residencies, and programs of continuing education, establishment of office practices, the decision on type of practice, and the admission to hospital privileges are determined and fixed by physicians without governmental regulation. You decide where you will practice and how. You decide what hours to maintain; what records to keep. You decide upon your fee scale. You, in company with your peers, establish guidelines for yourselves as you engage in the practice of medicine.

This fact of self-regulation has significance for two reasons. One, it was granted by society because society recognized it *did not* have the knowledge necessary to establish rules to regulate the profession. Two, this self-regulation is al-

*Presented before the Pulaski County Medical Society, Little Rock, Arkansas, October 3, 1967.
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most totally patient-oriented, that is, it is intended for the benefit of the patient rather than the physician.

Sooner or later, in the United States at least, practically every human being has occasion to utilize some health care service. This may be simply a self-diagnosis and the use of aspirin or Preparation H, the misbeguided reliance on chiropractors or other like cult practitioners, or the use of conventional medical care. We are a health conscious nation. To protect those who seek health care, in its many available forms, some protective regulation is obviously necessary. Many have suggested or implied that health care is a quasi public-utility and should have governmental regulation as such. Medicine, because of its age and stature, because of its nature and its position, has been expected to assume responsibility for safeguarding the public in matters of health care.

Many years ago this was a relatively simply task. Now it is extremely complex. We have had a proliferation of workers in the health care field, we have seen legislative recognition given to cult and limited practitioners and we know medicine becomes more complex each day. Government has had to step in. The United States Food and Drug Administration is undobutedly the first example that would come to mind. There are others, of course, that touch upon and influence medical practice without interfering with the physician-patient relation.

By and large, however, despite the broad scope of health care and its impact on so large a number of individuals, society has either delegated to medicine or has permitted medicine to retain the privilege of governing itself within a major portion of the health care field.

In general, there is no question about the diligence of physicians in discharging the responsibilities of self-government that have been thrust upon them. They have the most sophisticated, the most highly developed, overall program of continuing education of any group, occupation or profession. They have the most sophisticated and highly developed programs to insure competence of any group, occupation or profession. They have a code of ethics that is without equal among the many codes that lead men to right conduct. They have taken action to regulate themselves to a greater extent than any other group, occupation or profession.

If all this is so, why then is it true that there is so much criticism of the medical profession? Why are there lawsuits, congressional investigations, unfavorable writings and the like? It is here that I think I see "current problems in medical ethics." The congressional hearings, the lawsuits, are but the symptoms. The problem is something else.

Many may well ask, if there are symptoms, isn't there a cause of those symptoms, a disease? Others may ask, are these really symptoms or are they uniformed guesses? I think the answer lies somewhere in between.

The biggest problem in medical ethics today is medicine's failure to educate the public concerning medical ethics. The public should be made aware of the fact that the Principles of Medical Ethics are patient oriented, not physician oriented. All one needs to do to convince himself of this is to read the Principles.

"Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion" (Section 1). They "should strive continually to improve medical knowledge and skill and make available to patients . . . the benefits of their professional attainments" (Section 2). They "should practice a method of healing founded on a scientific basis" (Section 3). "The medical profession should safeguard the public and itself against physician deficient in moral character or professional competence" (Section 4). "Having undertaken the care of a patient, the physician may not neglect him . . . He should not solicit patients" (Section 5).

"A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration in the quality of medical care" (Section 6). "In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him, or under his supervision to his patients" (Section 7). "A physician should seek consultation upon request; in doubtful or difficult cases; or whenever it appears that the quality of medical service can be enhanced thereby" (Section 8). "A physician may not reveal the confidences entrusted to him in the course of medical attendance" (Section 9), and "The honored ideals of the medical profession imply that

the responsibilities of the physician extend not only to the individual, but also to society . . ." (Section 10).

It is not entirely unnatural that medicine does not boast of all the disciplinary actions it takes. It is probably true, because of the nature of medicine that a certain degree of confidentiality deters medicine from disclosing its innermost organizational actions. Man does not publicly confess. It is probably true that there are many psychological reasons why medicine is reluctant to talk about its many efforts to insure observance of its ethical principles.

Nevertheless, the profession must in one acceptable way or another (1) report to the public, and (2) convince the public that medicine is governing itself in the manner and to the extent expected by the public. The current problem in medical ethics, in my opinion, is a failure to communicate to the public.

The public, not advised by medicine of medicine's efforts to protect the public, is ready to listen to those who crap and cavil against medicine. The public says, perhaps these charges against physicians are true; we have no evidence that medicine has been active in keeping its house in order. When a senator or a judge or a writer makes sensational charges against medicine, medicine is inclined to say, "he doesn't know what he is talking about" or "he doesn't have the facts." The man on the street, the patient, however, is in a quandary. He knows he knows too little about medicine to judge it. . . He has placed trust in his physician, but someone who may know has made charges which have just enough apparent truth in them to disturb him.

It is very simple for medicine to say there are bad apples in every barrel, or that only 3% of all physicians cause ethical problems. The patient may agree with medicine but he then asks what is medicine doing about the 3%. He has a right to ask because for all he knows his physician may be one of the 3%.

When the public granted the privilege of self-regulation to the medical profession, it did so with the expectation that medicine would regulate one hundred per cent of its practitioners. When the public becomes convinced that medicine is not regulating its own affairs, the public can rescind this privilege and impose governmental regulation on medicine.

Senator Philip Hart is trying to build a case for partial governmental regulation. The U.S. Department of Justice is trying to build a case for governmental regulation. The legislatures of New York and Connecticut are trying to decide whether to impose governmental regulation on a segment of medical practice.

You, as individuals, know of instances where a medical society took disciplinary action against a fellow physician. You, as individuals, know of many instances where a fellow physician was criticized severely by an appropriate committee of a hospital's medical staff. You, as individuals, know of fellow physicians whose privileges in hospitals are sharply limited because of lack of competence. You, as individuals, know that there are effective deterrents to improper, unacceptable, unprofessional or unethical conduct. You, as individuals, know that should you exceed the limits established by your peers, corrective action can be taken against you. You, as individuals, know that a highly developed system of discipline is in existence. You do not know, however, how effectively or how promptly that system will be invoked or utilized.

Presently, as things now stand, medicine's system of self-regulation depends on the fact that it is in existence and can be invoked plus the fact that 97% of all physicians need no regulation.

The conclusions one can draw from the current state of things as they are seem obvious. Medicine can take action against the 3% or the public can become aroused, rightly or wrongly, and withdraw the privilege of self-regulation.

One physician who selfishly and injudiciously decides to own and operate a pharmacy in a community where adequate facilities exist can bring down condemnation on the entire physician population in the community simply because medicine tolerated the situation.

One physician who uses the aged or institutionalized mentally retarded minors as subjects for clinical investigation without proper consent, regardless of lofty motivation, can and will bring censure on all medicine because medicine, through its tolerance of the situation, has not protected the public.

Physicians who, with high ideals, agree to certain courses of conduct which are contrary to the legal principles of our free enterprise system place the profession in the unfavorable glare

of public scrutiny. Medicine is placed on the defensive; it must justify its actions and attempt to explain, often under impossible situations, how its privilege of self-regulation extends into fields other than medicine.

In all of the criticisms of medicine, complaint has been made against the profession as a whole, not against individuals. The question is always phrased, "why doesn't medicine do something?"

Hasn't the time come to reevaluate, in the light of existing conditions of medical practice, the obligations a profession has to itself and to the public? Isn't this the problem, the current problem of medical ethics? The ownership of a pharmacy, the failure to respect the rights of the subject in clinical investigation, advertising, fee splitting, associations with cultists — all of these problems of ethics are recurring problems that wax and wane with the times.

The big problem, the serious problem, is the lack of communications between the profession and the public on medicine's responsible efforts to protect the public. Admittedly, this matter of communications does not demand an open hearing on every complaint. This would be ridiculous. It does not demand an open hearing at all.

There is no reason, however, why medicine cannot develop and exploit the good work its more than 800 grievance committees perform; there is no reason why grievance committees could not be directed to act more promptly and report more adequately to patient. There is no reason why the grievance and ethics committees of medical societies should not report more fully, without the use of names of physicians, to their medical societies at the annual meeting. There is no reason why Boards of Medical Examiners should not report fully to the state medical society regarding its disciplinary procedures during the year. There is every reason why these reports should be made. They should be available. If the press is inclined to do a story about medical discipline, reports are available.

The American Medical Association has published reports of disciplinary proceedings before state medical societies and state boards of medical examiners since 1961. Comments on this practice have been universally favorable. The report, however, is statistical only. It must become more detailed and more informative.

Just as important as reporting and making the reports available is prompt consideration of complaints against physicians. Because medicine is given the privilege of regulating itself, it must do so or the privilege will be withdrawn.

It is as inevitable as tomorrow that unless medicine does regulate the practices of all of its members, that unless it maintains discipline, unless it insures observance of ethical principles, government will step in and regulate the practice of medicine. Recognition of this fact and the determination to do something about it is the current problem in medical ethics.

Renal Lesions in Rabbit After Long-Term Exposure to Cadmium

B. Axelsson, S. E. Dahlgren, and M. Piscator (Karolinska Institutet, Stockholm)

Arch Environ Health 17:24-28 (July) 1968

Renal lesions were produced in rabbits by subcutaneous injections of cadmium chloride, 0.25 mg/kg body weight, five days a week. Exposure for 11 and 17 weeks resulted in mild alterations in proximal tubular epithelium cells. Exposure for 23 and 29 weeks gave more profound tubular changes and sometimes mild glomerular alterations. Large deposits of metal were seen, especially in the proximal segments of the tubular epithelium cells; a small part of these were iron deposits. Degenerative changes were slight and signs of tubular epithelial regeneration were evident in rabbits examined 30 weeks after a 24-week exposure period. The metal deposits were still of the same magnitude as in rabbits examined after 23 and 29 weeks. The results from these histological examinations agree well with the results from investigations of kidney function in these rabbits.

Accomplishments Bring Challenges!*

Dr. Milford O. Rouse**

How fine and appropriate it is that on the occasion of the One Hundreth Anniversary of the founding of the Pulaski County Medical Society you should honor the lovely wives of the Woman's Auxiliary. Our good wives are most wonderful and appreciated partners and allies in our great task of serving as the nation's physicians. I am happy to bring sincere congratulations and good wishes from your 215,000 fellow members of the American Medical Association and the others of the 90,000 members of the Woman's Auxiliary to the American Medical Association.

You have a history of accomplishments, in the first century of your existence, that are truly stimulating—accomplishments which make you justly proud. Contemplation of these accomplishments should give you the courage and inclination to meet the increasing challenges facing us as physicians and auxiliary members today. Among the challenges facing you in Pulaski County and Arkansas, and the rest of us in this country are the following:

We must continue to elevate the standards and quality of health care services. We must make adequate health care services available to all citizens, with proper assistance by community and government in instances of demonstrated financial need. We must continue to enlarge and expand the plans of voluntary pre-paid health insurance. Above all, we must—and I believe will—exercise leadership from our own medical profession in thorough health care service surveys in our own communities, and then furnish the leadership and implementation in meeting any demonstrated health care deficiencies that might be found. We will continue to participate in voluntary health facility planning. We will meet the challenge of increasing participation in community activity by physicians serving as responsible citizens.

Our system and standards of health care in this country are truly magnificent and yet are not perfect, which is in itself a challenge to continued action in improvement. One of the most significant actions of the last session of the AMA House of Delegates in Atlantic City in June was the enthusiastic approval of a report on the cost of medical care, which emphasized two items. First, as physicians, we have a definite responsibility to help our patients get the most out of their health care dollars. In the next place, it is incumbent upon us as physicians to increase our own productivity and efficiency.

I notice with interest and approval that you have several active chapters of the AAMA in Arkansas. This fine group of 12,000 medical assistants constitutes one of our greatest reservoirs of valuable aid, particularly in helping us to build up and maintain the public relations that we should have. I would hope that you would join with me in adding at least 2,000 new members annually to this fine national organization. Your secretaries, receptionists and nurses are probably the best in the world in your estimation, but they can share their experiences and ideas with others. They will benefit from the bulletin of this fine organization and from some special training courses which are offered. I consider as one of my best investments, the privilege of paying the membership dues in the AAMA, of my office staff.

And our wonderful wives are truly our partners in many ways, but are most valuable to us in carrying on our service to the people of our particular localities. We have assured Mrs. Karl Ritter, President of the Woman's Auxiliary to the AMA, that we physicians will do our part towards helping add at least 10,000 new members to the organization during the current year.

We can profitably stimulate better liaison with the other members of the health team in our respective areas—our dentists, pharmacists, nurses, hospital administrative personnel, research people, teachers and others—all who play a significant part in constituting the health care industry—now third in the entire nation in total number of people engaged. Particularly can we work profitably with our allies in the field of lay health education. Herein lies one of the most stimulating fields of constructive work, both by our medical profession and by our allies. People are basically interested in their own bodies and what can go wrong with them.

Health is truly a common denominator, and

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if we will devote more attention to preventive medicine, namely giving information and motivation to the average citizen, we will raise health standards in our country infinitely faster and more successfully than by any system of federal health care. Every community can easily stage a health fair with the cooperation of the Auxiliary, of the dentists, pharmacists and hospital personnel, and nurses in our own areas. Health museums are increasing in number in our country, and in Michigan, a Healthmobile has demonstrated its practical value. The health journal, "Today's Health," is an ideal gift for newlyweds or for friends at Christmas time.

May I add a word about the wonderful opportunity we have as active practitioners to come to show a personal interest in the fine young men and women who are now in our medical schools—our medical confreres of a few years from now. It is wonderful to have an active advisory or liaison committee both from the state medical and the county medical in the territory where a medical school is located, but each of us has the privilege of maintaining a close personal friendship with young men and women who may be in medical school from our respective cities.

One of the greatest challenges before medicine today is for all of us to take advantage of the privilege and the opportunity and the responsibility of working as participating citizens in our respective localities. I can and do belong to my Chamber of Commerce and participate in its committee work. I serve as best I can in the church of my choice. I am a member of the Optimist Club in my home city. And I would hope that each of us would realize that only as we contribute our services as citizens can we expect our fellow citizens to look to us for advice on health matters, particularly of a community nature.

And, as citizens, we have the privilege and obligation to take an active part in the political activities of our home cities and states, particularly in selecting our national legislators. AMPAC and Arkansas PAC constitute some of the most practical activities sponsored by American physicians and deserve 100 per cent membership by our medical profession each year. An active program in 1967 is one of the best ways of insuring successes at the polls in 1968. I have the confidence to feel that the physicians of Arkansas are going to continue to be active in AMPAC, as well as in the political action groups in their county and state.

American medicine has always felt that it is the right of every citizen to have available adequate medical care—the right of access to health, as it were, but it is the individual citizen's responsibility as well as privilege to take the initiative in securing this care, through his own resources primarily, with the financial aid of his community and government in instances of demonstrated financial need. Health cannot be handed to an individual or forced on him, any more than education, the availability of which is also his right.

The immediate future truly calls for re-valuation on the part of each of us, a sincere "soul-searching" as to the capabilities and resources of each of us as individuals as well as groups of physicians. Such re-valuation should result in a more complete development of all resources and capabilities to the end of maximum activity and service.

One of the greatest privileges as well as responsibilities of an individual physician is to participate in his county society, in his state society, and in the activities of the American Medical Association. To do this he needs to keep well informed and it is my sincere hope that every physician will devote that comparatively short time that it will take to review his county bulletin, his state medical journal, the AMA News and the Journal of the American Medical Association. Your State President will join with the President of the AMA in regular messages on the President's Page, which will seek to direct your attention to current developments and to special articles which will mean much to you in serving better your patients in your community.

So again I extend my sincere congratulations on your first century of tremendous, commendable accomplishments, and wish for you even broadened areas of happy, fruitful service to Pulaski County and in Arkansas, and to our good country in the decades immediately ahead of us. I have great faith in you, in American Medicine and in our wonderful country.

STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY
WILLIS E. BROWN, M.D., Professor, and Chairman
John B. Nettles, M.D., EDITOR

Renal Function in Normal Pregnancy

John B. Nettles, M.D.

Although the tremendous alterations in the cardiovascular system during pregnancy have long been recognized, changes in renal function are generally poorly understood. During the past decade many workers have intensively studied these renal changes and there is now general agreement on the results of usual kidney function tests. Reports in the literature must be carefully evaluated, noting values presented as compared to pregnant or non-pregnant controls. Unless the physician is well informed his conclusions are apt to be erroneous.

ANATOMIC CHANGES

While pregnancy produces no pronounced gross changes in the renal parenchyma, dilation of the upper collecting structures produced by high levels of estrogen and progesterone is well documented. Together with the dilation there is decreased peristalsis in the ureter. The result is a slowing down of the flow of urine with a relative stasis which predisposes to upper urinary tract infection. In addition, tests of renal function dependent upon a sample of urine passing through the kidney must be modified because of the increased "dead space" in the renal pelvis and ureters.

Histologically, no major morphologic changes have been noted during normal pregnancy either with the light or electron microscope.

RENAL FUNCTION TESTS

During normal pregnancy there is a 30 to 50 per cent increase in the glomerular filtration rate and renal plasma flow as measured by the usual clearance studies. Sims has referred to this as "supernormal function" or "hypertrophy of function". One of the best studies of renal function in normal pregnancy is that of Sims and Krantz. They were able to perform serial studies on the same patients from early pregnancy through the puerperium. Not only did they obtain mean values for groups of patients but also serial values for individual patients. The glomerular filtration rate was increased approximately 50 per cent throughout pregnancy and returned rapidly to the nonpregnant range following delivery. The renal plasma flow, as estimated by the excretion of para-aminohippurate, was found to be increased to 25 per cent above control values throughout early and midpregnancy but decreased toward normal thereafter. It is therefore obvious that a pregnant patient might have a glomerular filtration rate in the average nonpregnant normal range and still have a significant reduction in renal function. In evaluating renal function in pregnancy serial studies are often helpful since there is a wide range of normal values. The failure of the renal function to increase from early pregnancy values, even though they are within the normal range, would ordinarily imply deterioration of renal function during pregnancy.

The changes in cardiac output and blood volume that occur during pregnancy account for only a relatively small part of the change in renal function. Hormonal factors seem of more importance than hemodynamic factors. All of the factors of importance in increasing renal function are poorly understood. Kalousek, Pollak and co-workers have presented evidence that placental lactogen with its growth hormone like action plays a prominent role. The role of both free cortisol and that bound to serum proteins,

both of which are increased in normal pregnancy, play a major role.

CONCENTRATIONS OF SUBSTANCES CLEARED BY THE KIDNEY

Paralleling the increase in renal clearance tests there is a drop in the serum levels of substances cleared by the kidney, as noted by the serum urea nitrogen or creatinine values obtained. Factors other than glomerular filtration and tubular reabsorption are also involved when other metabolites are considered. Although minor degrees of glucosuria are common during pregnancy, due in part to increased filtered load such factors as altered tubular reabsorption and a lower renal threshold for sugar play a significant role. For these reasons most of the pregnant women who develop glucosuria do not in fact have diabetes mellitus but are entirely normal. The screening of pregnant women for diabetes mellitus remains valid despite these findings since pregnancy often reveals latent diabetes. Patients with glucosuria should still be studied by glucose tolerance tests. It is true that most of these tests will prove normal the occasional detection of a previously undiagnosed diabetic patient still warrants these studies. The finding of a positive copper reduction test for sugar in the urine should not be attributed to lactosuria alone. In a previous (but unpublished) study in which I participated, all pregnant patients with a positive copper reduction test for sugar who had lactosuria also had a significant degree of glucosuria. Fortunately the routine use of glucose oxidase reagents rather than the copper reduction method obviates this confusion in practice today. The dip stick method is quite simple.

In considering the various levels of other substances cleared by the kidney extra renal factors must be kept in mind. Salt and water excretion is modified by altered levels of progesterone, aldosterone and antidiuretic hormone, by postural changes, by diurnal variations, by endogenous and exogenous sources, by hemodynamic alterations, intracellular and extracellular retention, diuretic and other therapy, by various systemic diseases and numerous other factors.

Mild degrees of orthostatic proteinuria due to increased venous pressure and congestion of the renal parenchyma are common in pregnancy. The amount of protein loss however rarely exceeds one gram per day.

Uric acid clearance and excretion is an important index of preeclampsia. During normal pregnancy clearance values and serum levels reflect the increased renal function. In preeclampsia an early and constant change is a rise in the level of uric acid in the serum, out of proportion to any change in the levels of creatinine or urea nitrogen. This observation is valid only if thiazide diuretics have not been used, as thiazide diuretics themselves tend to produce a selective rise in serum uric acid concentration.

EDEMA AND RENAL FUNCTION

That the pregnant woman tends to retain fluid is well established. Almost traditionally it has been assumed that this fact indicated a relatively reduced renal function. On this basis authors, both recent and past, have championed the use of diuretics to mobilize this fluid in the hope that preeclampsia would be prevented. It is, however, secondary hyperaldosteronism of pregnancy which really favors sodium retention by its action of increasing tubular reabsorption. During normal pregnancy salt tolerance tests show the urinary sodium concentration to be about double that of the plasma. In patients with preeclampsia sodium excretion is impaired and there is a tendency for reversal of this pattern.

During normal pregnancy there is an increased aldosterone and renin, and a resistance to the oliguric and sodium conservation effects following infusion of angiotensin II. Should the patient develop preeclampsia this process is reversed.

Other authors have presented unequivocal evidence that the edema of pregnancy is physiologic, and that much of the edema of normal pregnancy is of extrarenal origin. The high levels of corticosteroids associated with pregnancy are quite helpful in combating an excessive loss of sodium and water that would otherwise accompany the increased filtration that occurs through the normal kidney during pregnancy. Diuretics are in fact less effective in controlling edema of pregnancy than that due to other causes.

Since the *normally* pregnant woman handles salt quite well there is no need for routine restriction of salt intake or use of diuretics even though the patient be edematous. Such action might produce serious sodium depletion if combined with severe sodium restriction. That more

patients do not develop severe hyponatremia on this combination is probably due to the failure of the patient to carry out the instructions of the physician.

It must be noted the above remarks apply to normal pregnancy and not to patients with renal disease or toxemia. A pregnant patient, even though she is edematous, shows an entirely normal renal histologic pattern and her renal function is generally increased. The patient with preeclampsia or renal disease shows significant microscopic renal lesions and renal function is usually reduced. The wise physician therefore attempts to delineate the cause of any edema.

DIET IN NORMAL PREGNANCY

A diet rich in meat and other protein, and therefore abundant in sodium, is not only highly palatable and easily tolerated but is protective against the development of toxemia. Although the normal pregnant woman can handle ordinary salt intake well, it is wise to restrict heavily salted foods such as olives, spiced luncheon meats and potato chips for these foods unduly increase the sodium intake, are high in calories and generally quite poor in necessary nutritional elements. Furthermore when these foods are eaten they substitute for the more nutritious foods rather than supplement them. These dietary rules are good not only for the pregnant patient but for her family as well.

ANTIDIURETIC EFFECTS OF OXYTOCIN

Recently there have been several reported instances of oliguria and water intoxication following the use of oxytocic agents in pregnancy. The oliguria is not associated with significant alterations in glomerular filtration, renal plasma flow or urinary electrolyte excretion. Oxytocin seems to act by direct action on the renal tubules. Today all standard oxytocins are synthetic and all possess a small amount of antidiuretic activity. The doses used during late pregnancy have posed no major problems. Instances of water intoxication have usually been associated with the use of oxytocin combined with large quantities of electrolyte-free water in patients with abortion or following delivery. Prevention of water intoxication is by use of larger amounts of oxytocin in smaller volumes of fluid given at a slow rate of infusion. The use of saline solution for part of the fluid is advisable if more than 3,000 or 4,000 ml. of fluid are given within twelve hours.

SUMMARY AND CONCLUSIONS

Renal function in the normal pregnant woman differs in many ways from that of her nonpregnant counterpart. The changes that occur tend to increase renal function and these effects must be considered in relation to numerous extrarenal factors which influence kidney function and the levels of various substances cleared by the kidney. The edema of normal pregnancy is quite different from the edema associated with renal disease of preeclampsia and it behooves obstetricians to make every effort to differentiate between the two types. There seems to be no indication for routine sodium restriction during normal pregnancy or for that matter the routine use of diuretic therapy as a prophylaxis against preeclampsia.

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SURGERY at the UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE*

*Under the direction of Gilbert Campbell, M.D., Professor of Surgery.

Pulmonary Embolectomy

Gilbert S. Campbell, M.D. and G. Doyne Williams, M.D.

Few surgical procedures have elicited more emotional discussion than has pulmonary embolectomy. In the fifty year span from its original description by Trendelenburg in 1908[1] until the first successful pulmonary embolectomy was done in the United States in 1958,[2] the number of articles on pulmonary embolism far exceeded the number of successful operative procedures for this condition. The first successful pulmonary embolectomy was performed in 1924 by Kirschner[3] (a Trendelenburg pupil) in Germany.

The purposes of this paper are to present a report of cases and to discuss diagnosis and treatment of this condition.

CASE REPORTS

Case 1. D.B., No. 21-10-84. This 64-year-old white male was admitted to the Medical Service on December 28, 1963, with a two week complaint of right pleuritic chest pain and scant hemoptysis. Physical examination revealed decreased breath sounds with a faint friction rub in the right lower chest. The remainder of the physical examination was normal and there was no evidence or history of extremity or pelvic phlebitis. The patient was treated with heparin and penicillin and ten days following admission suddenly experienced severe chest pain and dyspnea. Ligation of the inferior vena cava was done on January 9, 1964. The dyspnea progressed and the patient's EKG (previously normal) now showed depressed ST segments in leads II, III and AVF with T wave inversion in lead III. Chest film showed an increase in the right lower lobe infiltrate noted on admission. The patient's blood pressure suddenly became unobtainable at 1:30 a.m. on January 10, 1964, with faint femoral pulse of 140 per minute. The extremities were cyanotic, and he was unresponsive. He was rushed to the operating room; and on opening the chest, arrest of the greatly dilated heart occurred. Immediate cardiopulmonary bypass was instituted, and large pulmonary emboli were removed from both pulmonary artery divisions (Table 1). The heart, however, could not be resuscitated. No site of origin for the emboli could be found at autopsy.

Case 2. R.M.D., No. 25-09-12. This 24-year-old Negro female was admitted to the Surgical Service on June 10, 1966, with bilateral breast masses with scattered peripheral lung infiltrates. She had no respiratory symptoms and no evidence of present or past phlebitis. Excision of bilateral fibroadenomas was performed on June 16, 1966, under general anesthesia. Recovery was uneventful and on June 20, 1966, right scalene fat pad biopsy was done with recovery of five normal nodes. The patient was transferred to the Medical Service on June 24, 1966, for pulmonary work-up. She suddenly developed dyspnea with left pleuritic pain and hemptysis. She was treated with heparin and cardiac catheterization on June 25, 1966, revealed right ventricular pressure of 45/0 mm. mercury. Pulmonary arteriography showed complete right pulmonary artery occlusion with

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partial left pulmonary artery occlusion. The patient was taken immediately to the operating room with blood pressure 80/40 mm. mercury and pulse of 140 per minute. The nail beds and lips were cyanotic. Large emboli were removed from the right and left pulmonary arteries on cardiopulmonary bypass, and the patient was returned to the Recovery Room with improved saturation and blood pressure of 110/80 mm. mercury. She, however, failed to regain consciousness and expired 22 days postoperatively. Autopsy was refused.

Case 3. J.C., No. 25-65-38. This 31-year-old Negro female was admitted on November 17, 1966, with a history of bilateral lower extremity edema and recurrent phlebitis for one year. The patient was obviously dyspneic, had anasarca and mild cyanosis. Chest film showed an enlarged heart, right pleural effusion and right lower lung infiltrate. EKG revealed right axis deviation, right ventricular hypertrophy, and frequent premature ventricular contractions. Right thoracentesis produced 2280 cc. of straw colored fluid. The patient was treated with heparin and immediate pulmonary scan showed very poor right lung perfusion. Subsequent right heart catheterization revealed pulmonary artery pressure of 75/25 mm. mercury and pulmonary arteriography suggested emboli in the periphery of the right and left upper lungs. She went into acute cardiorespiratory collapse on November 19, 1966, and was taken immediately to the operating room where small fragments of the multiple peripherally located emboli were removed with cardiopulmonary bypass. Vigorous attempts with suction and Fogarty catheters failed to accomplish complete removal of the peripheral emboli. The patient was returned to the recovery room in only slightly improved condition. Cardiac arrest occurred 12 hours later and resuscitation was unsuccessful. Autopsy confirmed the presence of multiple peripheral emboli, tightly adherent with the pulmonary artery branches.

Case 4. M.W., No. 16-84-85. This 57-year-old white male was admitted on August 30, 1967, with an extensive hay baler laceration of the left upper arm. The wound was surgically debrided and daily soaks started in preparation for skin grafting. Thirteen days later sudden shortness of breath and substernal chest pain developed. A positive Homan's sign was found, EKG showed right ventricular strain pattern and chest film revealed increased cardiomegaly, the blood pressure fell from a normal of 130 to 90 mm. mercury. Cardiac catheterization on September 11, 1967, revealed pulmonary artery pressure of 50/25 mm. mercury and arterial

TABLE 1

Unit No.	Age	Extent of Emboli	Treatment	PA Pressure at Cath	Result	Comment
21 10 84	64	90% Bilateral	Initial IVC ligation then embolectomy		Died in O.R.	Moribund at time of surgery
25 09 12	24	90% Bilateral	Embolectomy	45/25	Died 22 days postop	Moribund at time of surgery
25 65 38	31	100% Right 10% Left	Attempted embolectomy	75/25	Died 12 hrs. postop	Organized peripheral emboli
16 84 85	57	80% Right and left	Embolectomy with IVC ligation	50/25	Excellent	Living and well one year later
26 74 07	31	100% Right 10% Left	Embolectomy with IVC plication	53/18	Excellent	Living and well one year later
21 74 47*	52	(1) 80% Right 10% Left	Embolectomy with IVC plication	70/20	Recurrence	
		(2) 10% Right 70% Left	Embolectomy	90/20	Excellent	Living and well 2 months later

*Had two successive embolectomies.
The last four patients in the series had pulmonary scans which correlated well with the pulmonary arteriographs.

oxygen saturation of 48%. Pulmonary arteriography revealed large proximal right and left pulmonary artery emboli. Pulmonary scan showed markedly decreased perfusion on the left. His condition was deteriorating and embolectomy utilizing total cardiopulmonary bypass was done on September 11, 1967, with ligation of the inferior vena cava. Recovery was uneventful and the patient was well when last seen in the clinic on September 26, 1968.

Case 5. J.H.S., No. 26-74-07. This 31-year-old white male was admitted with a herniated L4-S1 disc on October 27, 1967, and it was removed on November 11, 1967. Six days postoperatively he suddenly developed severe abdominal pain and dyspnea. The pulse was 140 per minute, blood pressure 80/40 mm. mercury and central venous pressure 19 cm. H_2O. Pulmonary embolization was suspected and a lung scan showed marked decrease in right lung perfusion. Subsequent right heart catheterization revealed pulmonary artery pressure of 53/18 mm. mercury and pulmonary arteriography showed complete right pulmonary artery occlusion. The patient had an oxygen saturation of 78% in the femoral artery and 33% in the pulmonary artery while breathing oxygen. Pulmonary embolectomy was done with total cardiopulmonary bypass on November 17, 1967, and vena caval plication was accomplished at the same operation. Recovery was uneventful and the patient is presently living and well.

Case 6. R.W., No. 21-74-47. This 52-year-old Negro female sustained an undisplaced spiral fracture of the right distal fibula on August 20, 1968, and was treated with a walking cast as an outpatient. Two weeks later she was admitted for cough, pleuritic right chest pain and dyspnea. Pneumonia was suspected. Twenty-four hours following admission dyspnea became severe, her lips appeared cyanotic and the pleuritic pain increased. Pulmonary scan showed decreased right lung perfusion and the patient was treated with heparin. Her condition worsened and cardiac catheterization on September 10, 1968, revealed a pulmonary artery pressure of 70/20 mm. mercury with pulmonary artery oxygen saturation of 55%. Pulmonary arteriography showed a large embolus in the right pulmonary artery. EKG showed marked right axis deviation. Utilizing total cardiopulmonary bypass, a large embolus was removed from the right pulmonary artery on September 10, 1968, and the inferior vena cava was plicated. Recovery seemed uneventful until the fourth postoperative day when severe dyspnea with pulse of 140 per minute, central venous pressure of 18-19 cm. H_2O and a fall in blood pressure to 70 mm. mercury occurred over a two hour period. Recurrent embolization had to be considered, although the possibility seemed remote and a repeat catheterization was done. The pulmonary artery pressure was 90/25 mm. mercury and repeat pulmonary arteriography revealed a large left pulmonary artery filling defect. Emergency reoperation with total cardiopulmonary bypass on September 14, 1968, was done with the patient in shock. Totally occlusive emboli were removed from the left pulmonary artery. She stabilized quickly postoperatively and recovery was uneventful. Inferior vena cavagram on November 6, 1968, showed no evidence of plication and it is assumed that the stitches pulled through the caval wall. The patient is presently alive and well.

DIAGNOSIS

Prior to the introduction of lung scanning and pulmonary arteriography, the diagnosis of pulmonary embolism was imprecise. At times, pulmonary embolism was confused with respiratory illnesses (pneumonia or epidemic pleurodynia) or cardiac diseases (myocardial infarction, angina pectoris, or pericarditis). Distended neck veins and electrocardiographic findings of acute cor pulmonale may be noted in patients with pulmonary embolism. At times, the sudden onset of profound systemic hypotension may be the major indication of massive pulmonary embolism.

The conventional lung scan using I-131 tagged macro-aggregated serum albumin has been shown conclusively by Sabiston and Wagner[4] to be a safe and reliable method for the diagnosis of massive pulmonary embolism. A bedside scan for the diagnosis of massive pulmonary embolism has been suggested by MacLean and associates at the Royal Victoria Hospital in Montreal.[5]

Right heart catheterization enables one to perform a pulmonary arteriograph as well as to record pressures and oxygen saturations in the pulmonary artery. Pulmonary artery hypertension has been stressed as a diagnostic finding in patients with massive pulmonary embolism, but patients with marked pulmonary embolism

in terminal cardiac failure may not demonstrate the usual right ventricular hypertension noted in these patients.[6]

TREATMENT

The treatment of pulmonary embolism may be operative and/or nonoperative. It would seem that pulmonary embolectomy should be reserved *only* for those patients with refractory systemic hypotension and arteriographic demonstration of marked mechanical blockage of the pulmonary vasculature.

One must recognize that the surgical removal of pulmonary emboli may at times be analogous to a sensational recovery shot on the golf course.[7] Whereas one must be awed by a shot that carries the green from an almost unplayable lie behind a tree in the rough; nonetheless, an error is the raison d'etre for the recovery shot. The best treatment for pulmonary emboli is prevention of the initial thrombus formation by early ambulation, proper employment of elastic support, and anticoagulants. Early ambulation is not dragging or lifting the patient from a bed to a chair. The sitting position is actually more thrombogenic that the recumbent position, so when the patient is not walking he should be lying in bed. If pulmonary emboli occur in spite of these nonoperative measures, ligation,[8] plication,[9] or partitioning[10] of the inferior vena cava is the best operative approach.

Therefore, pulmonary embolectomy should be utilized only in patients with life threatening occlusion of the pulmonary arterial circuit who have not responded favorably to other therapy.

DISCUSSION

The degree of systemic hypotension noted in patients with pulmonary embolism is dependent upon the severity of the mechanical blockage of the pulmonary circulation. There are experimental studies against reflex factors contributing to systemic hypotension in pulmonary embolism.[11, 12] The cause for systemic hypotension in massive pulmonary embolism is inadequate left heart filling as a result of blockage of the pulmonary circulation.

Since the introduction of pulmonary embolectomy under cardiopulmonary bypass in 1961, there have been more successful operations than were performed in the half century immediately prior to this period. According to Steenburg,[2] there were two reasons for the abandonment of attempts at pulmonary embolectomy in the 1940's: (1) The aura of discouragement which surrounded previous unsuccessful attempts and (2) the promise of a more basic attack on the disease afforded by the advent of the anticoagulant drugs. In 1944, Ochsner,[13] in discussing a paper on pulmonary embolism at The American Surgical Association said, "I hope we will not have any more papers on the removal of pulmonary emboli before this organization, an operation which should be of historical interest only. Certainly, the way to prevent death from pulmonary embolism is to prevent the clot from becoming detached and getting into the pulmonary artery if thrombosis does occur."

However, pulmonary embolism has occurred in spite of anticoagulant therapy or ligation of the inferior vena cava. The first successful pulmonary embolectomy under cardiopulmonary bypass was performed by Sharp at Johns Hopkins Hospital on February 17, 1961. This case was reported at the meeting of the Johns Hopkins Medical and Surgical Association on February 19, 1961, but was not published until July, 1962.[14] Cooley performed his first operation in April, 1961, and was the first to publish a successful result in August, 1961.[15] A survey of the current status of pulmonary embolectomy from massive pulmonary embolism was reported by Cross and Mowlem in 1967.[16]

A translation of Trendelenburg's original article on pulmonary embolectomy[1] states, "Rapidity is essential. Incise the pulmonary artery, pull out the embolus with a pair of forceps, and immediately close the incision in the arterial wall with clamps, and, as before stated, using no more than 45 seconds. The compression is then removed, and one can suture the artery and the soft parts at leisure."

Morrison[17] wrote that pulmonary embolectomy "should be reserved for patients in imminent danger of death from pulmonary embolus but who would otherwise have a reasonable expectation of life."

It should be stressed that there is ample experimental and clinical evidence for the resolution of thromboembolic blockage of the pulmonary circulation.[18, 19, 20] For this reason nonoperative treatment is the treatment of choice in most patients with pulmonary embolism.

SUMMARY

We have reported six patients who were subjected to pulmonary embolectomy at the University of Arkansas Medical Center, and three of these patients are living and well. We have also reviewed the diagnosis and treatment of massive pulmonary embolism.

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Natural History of Tuberculosis in Human Body

J. A. Myers, J. E. Bearman, and A. C. Botkins (School of Public Health, Univ of Minnesota, Minneapolis)

Dis Chest 53:687-699 (June) 1968

Of 3,192 graduates of three private hospital schools of nursing, 91.9% were traced. The 68 who died for non-tuberculous conditions and the 289 who were not located were followed medically for 1,374 and 8,734 person-years respectively before death or at the time of last contact. When prophylactic measures were well under way (including tuberculin testing) only eight converters were found in all three schools. Among the 1,323 students who reacted to tuberculin on admissison, or converted while in school or after graduation, 35 (2.8%) subsequently developed clinical pulmonary lesions, one had renal disease, and ten pleurisy with effusion. No student developed tuberculous meningitis of miliary dissemination. Among the 14 who converted while in school, 11 did so before 1935, two in 1943, and one in 1944.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 52 SEX: Male BUILD: Medium BLOOD PRESSURE: 130/86

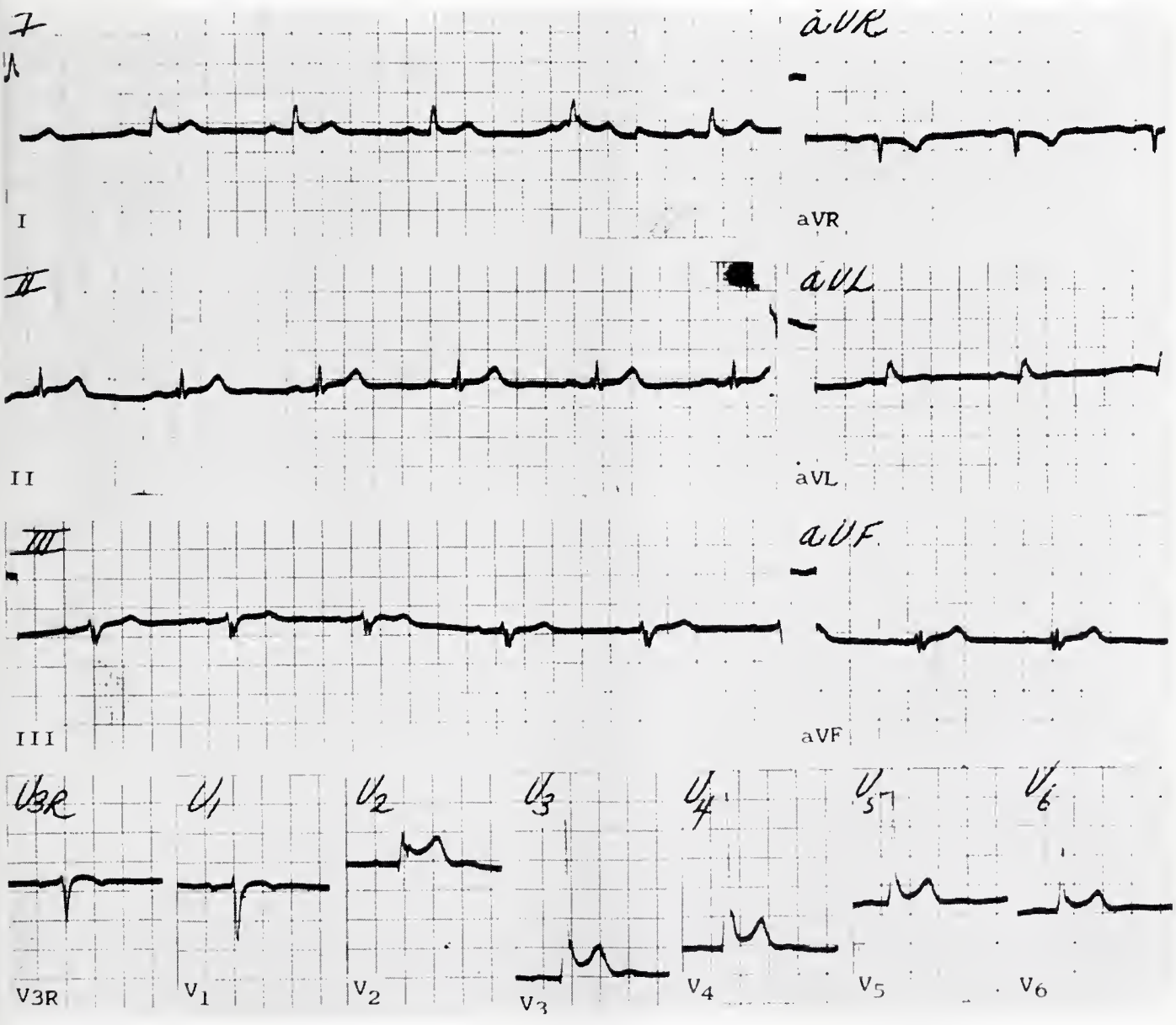
CARDIAC DIAGNOSIS: Previous pericarditis?

OTHER DIAGNOSES: None

MEDICATION: None

HISTORY: Atypical chest pain. Repeated hospitalizations.

See answer on page 268



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

PUBLIC HEALTH AT A GLANCE

Hearing Screening Program in Arkansas Schools

The hearing screening programs in the schools of Arkansas are under the direction and supervision of the Maternal and Child Health Division of the State Health Department. This program was established to fill an obvious need to identify the children with suspected hearing problems, which might reduce their full utilization of educational opportunities as well as to prevent a possible permanent hearing loss.

The screening standards and referral criteria were established with the cooperation and recommendations of the Ear, Nose, and Throat Section of the Arkansas Medical Society. These standards and criteria are reviewed and evaluated periodically. Changes are made when necessary to keep the standards and referral criteria up-to-date in the newest audiometric procedures.

The portable pure-tone audiometer is used as the screening instrument because of its relative simplicity and ease of operation. It also insures a standardized screening test for every child. These instruments are purchased and kept in repair by the State Health Department except in the case of some schools who have purchased their own. The state owned equipment is placed in the local health departments to be loaned free of charge to the schools.

Each child is given the screening test individually. The screening test consists of presenting to the child, through earphones, pure tones of 500; 1,000; 2,000; 4,000; and 6,000 cps at an intensity level of 30 deciBels (ISO). If the child fails to respond at any of the frequencies at 30 deciBels, he is scheduled for a rescreen to be given at least two weeks later, allowing time for colds or other temporary conditions affecting the hearing to clear up. If he still fails the rescreen, he is given a complete threshold test and an audiogram is made showing the results.

Volunteers are trained by the State Hearing Consultants or the Public Health Nurse to administer the screening tests. The threshold test is given by the State Hearing Consultant or the Public Health Nurse.

Parents of children who fail the referral criteria of the audiogram are notified by means of a letter and a copy of the audiogram suggesting that they take the children to a physician for an examination.

Special care is taken to impress upon school officials, teachers, and volunteers that the quietest place possible must be provided to conduct the screening program. A great deal of background noise will affect the validity of the testing and may consequently result in a high rate of invalid medical referrals. Background noise will usually have its greatest effect upon the lower frequencies screened.

It is also stressed that the screening test is by no means complete and final. Some children who are referred may be found to be without a hearing loss upon examination by a physician. This is due to many factors, some of which are: (1) Intermittent upper respiratory infections which clear up before the referral reaches the physician, (2) High ambient noise levels during the testing, (3) Lack of cooperation on the part of the child being tested. Every precaution is made to avoid unnecessary referrals.

The screening test is not designed to identify slight hearing problems and consequently should not be construed to mean that the child has a clean bill of health in this regard. The great majority of hearing problems which will create an educational handicap will be identified by this screening program, however. During the school year of 1966-1967, there were 94,484 chil-

dren screened and 2,698 were referred for further examination.

Most children identified by the hearing-screening program in the public schools of Arkansas will be seen by their family physician for further treatment. If more specialized attention is warranted these children may be in turn referred to the Arkansas Children's Hearing and Speech Center or to an Otologist. The Children's Hearing and Speech Center provides diagnostic services and counseling free of charge to hearing impaired children under the age of twenty-one. If speech therapy is indicated for such children this may be provided at a nominal cost. Hearing aid evaluations are also performed at the Center. If a hearing aid is recommended the parents of the child are responsible for its purchase unless the family is eligible for Crippled Children's Division services.

White Leaf-Shaped Macules

T. B. Fitzpatrick et al (Massachusetts General Hosp, Boston)

Arch Derm 98:16 (July) 1968

White macules are present in more than 50% of the patients with tuberous sclerosis when no other visible lesions typical of tuberous sclerosis have appeared. Most, if not all, appear at birth. In fair-skinned infants, the lesions may be easily overlooked and can only be detected with Wood's light. The configuration of the white macules may be oval or linear; the most characteristic outline is the lance-ovate shape, similar to that of the leaflet of the mountain-ash tree. Cytologically altered melanocytes and decreased tyrosinase activity and reduced melanin deposition on melanosomes are present in the hypomelanotic macules of tuberous sclerosis, whereas melanocytes are rarely present in the hypomelanotic macules of vitiligo. Cytological changes of the melanocyte system in the white macules of tuberous sclerosis are different from those present in the white macules of vitiligo. The familar triad of epiloia could now be more meaningful as convulsions, mental retardation, and white macules.

Lipid Components of Sialosylgalactosylceramide of Human Brain

B. Siddiqui and R. H. McCluer (Ohio State Univ, Columbus)

J Lipid Res 9:366-370 (May) 1968

A ganglioside, previously designated HG-B, was isolated from mixed human brain ganglioside preparations and shown to contain equimolar quantities of sialic acid, galactose, and sphingosine. Treatment of this material with neuraminidase yielded a galactosylcermide. The ganglioside, now referred to as sialosylgalactosylceramide, thus appears to be identical with G_{gal} reported by Kuhn and Wiegandt. The fatty acids and long-chain bases of this material were analyzed by gas-liquid chromatography. Approximately equal amounts of normal and hydroxy acids were found. Oleic, pamitic, and stearic acids were the only normal fatty acids present. In the hydroxy series, the C_{24} and C_{23} saturated acids were the major components. The ratio of C_{20} to C_{18} long-chain base was approximately 5:3. Sialosygalactosylceramide has no direct metabolic relationship with either the major brain gangliosides or adult brain cerebroside.

EDITORIAL

Refsum's Disease and a Related Disorder

Alfred Kahn, Jr., M.D.

New diseases are being described with bewildering frequency. New scientific instruments are in a large measure responsible for this, but in many instances, discoveries are still the result of the trained observer being at "the right place at the right time"—serendipity.

An interesting new disease syndrome first recognized by Sigvald Refsum of Norway, is the subject of a Clinical Staff Conference of the National Institute of Health (Annals of Internal Medicine, Volume 66, page 365, February, 1967). They report that forty cases have been reported which fit the syndrome called Refsum's Disease, or Heredopathia Atactica Polyneuritiformis:

(1) Autosomal recessive inheritance pattern.
(2) Atypical retinitis pigmentosa (night blindness; constricted visual fields).
(3) Hypertrophic peripheral neuropathy (motor and sensory losses).
(4) Cerebellar ataxia.
(5) Albuminocytological dissociation in cerebrospinal fluid.
(6) Nerve deafness.
(7) Ichthyosis.
(8) Nonspecific electrocardiographic changes.

Of particular interest in this disorder is the fact that these patients have a marked infiltration of the nerves, kidneys, and liver with a lipid, which has been identified as phytanic acid; this substance also accumulates in the blood and other tissues to lesser extent. Phytanic acid is present in normal humans in small amounts but in Refsum's Disease, it reaches concentrations of fifty to five hundred times normal.

In the National Health Institute cases diagnosis was confirmed by high serum phytanic acid. The nerve conduction was slowed moderately. There was a denervation pattern of the electromyogram in some areas. Electroencephalograms were mildly abnormal. The retinas showed atrophy. The sequence of symptoms which they have noted is:—childhood night blindness, mid-childhood wasting and weakness and anosmia; cerebellar signs and increased spinal fluid protein icthyosis, cataracts, and nerve deafness appears at variable periods.

The differential diagnoses includes peripheral neuropathy, acute intermittent porphyria, Fabry's Disease, hypertrophic neuropathy with cataracts, Tangier Disease, etc.

Postmortem studies have disclosed the widespread deposition of phytanic acid and it has been especially noted in the nervous system. In this conference Daniel Steinberg states that the studies "provide strong evidence that patients with Refsum's disease have a genetic defect that results in impaired capacity to oxidize phytanic acid. Evidently, there is little or no endogenous biosynthesis and the diet must represent the ultimate source of the phytanic acid accumulating." This effect is due to underfunctioning of some enzyme or enzyme system. It has been proposed that the defect was in the conversion of phytanic acid to pristanic acid. How phytanic acid produces the clinical syndrome is unknown. The level in the body can be reduced by diet but since the disease waxes and wanes it is not known if this leads to clinical improvement. Three possible ways which phytanic acid produces the clinical symptoms have been proposed:—direct injury to the nerve possibly through the "thorny" spatial configuration of the molecule, similarity between phytanic acid side chains and essential or important body chemicals and lastly phytanic

acids metabolism may overlap some pathway essential for nerve tissue and lead in this disorder to a derangement.

A similar disorder has been reported by Shy, Silberberg, Appel, Mishkin and Godfrey (American Journal of Medicine, Volume 42, page 163, February, 1967) in an article entitled A Generalized Disorder of the Nervous System, Skeletal Muscle and Heart Resembling Refsum's Disease and Hurler Syndrome." This patient, a Negro woman, had ataxia, chorioretinitis and peripheral neuropathy. She has had some signs which did not fit Refsum's Disease, including ophthalmoplegia, corneal infiltration and extensive skeletal muscle damage. This patient did not have any accumulation of phytanic acid, nor was there excessive urinary acid mucopoly-saccharides, as seen in Hurler's Disease. In an accompanying article, the ultrastructure of biopsies taken from this patient is reported. The principal findings were extensive demyelination and "zebra" bodies in the nervous system. The authors propose that these findings suggest either a disorder of myelin or a generalized disorder of cell membranes.

The studies performed on these unusual cases may reflect knowledge of importance to the understanding of normal metabolic processes.

Further Experimental Observations on Gastric Acid Secretion Inhibitor SC 15396

G. Gillespie et al (Western Infirmary, Glasgow, Scotland)

Gastroenterology 55:81-87 (July) 1968

Previous experiments showed that 1 mg/kg body weight of ethionamide of an organic acid (SC 15396) by single intravenous injection appeared specifically to inhibit the acid responses of dogs' gastric pouches to gastrin and gastrin-like peptide stimulation. This study, also of pouch dogs, extends over a much wider dose range of SC 15396. Doses of 10 mg/kg and greater will also inhibit the pouch responses to histamine, and to a meat meal. The SC 15396 is effective when given orally, and the results suggest rapid absorption from the small intestine. It was not effective in causing inhibition when irrigated locally within the pouches. The inhibition is impressive.

Total Body Calcium by Whole-Body Neutron Activation: New Technique for Study of Bone Disease

M. J. Chamberlain et al (Medical School, Birmingham, England)

Brit Med J 2:581-582 (June 8) 1968

The feasibility of whole-body neutron activation analysis for the determination of total-body calcium was explored by a series of experiments studying inanimate phantoms, cadavers, and three living subjects. It was shown that the method is safe (radiation dose approximately 1,300 mrem), and that the results are reproducible. Changes of 10% or less in total-body calcium, ie, for practical purposes total-skeletal calcium, are detectable. This represents a considerable advance on existing techniques, particularly radiological surveys. The new technique may become an important investigative tool and is valuable in the detection and management of metabolic bone disease.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D.C.—The American Medical Association protested strongly against proposed new medicaid regulations affecting payments to physicians and utilization review.

The proposed regulation on physicians' reasonable charges was described as an anomaly in a protest to the Department of Health, Education and Welfare.

In the protest filed with the Department of Health, Education and Welfare, the AMA termed the proposed regulation on physicians' "reasonable" charges as an anomaly because it is based on payments received with no consideration given to the usual and customary fee.

Since medicare payments made by the government are 80 per cent of the reasonable charge, this amount could become the maximum of every charge under medicare, the AMA said. Or, were physicians to receive less than full payment and write off losses, the reduced payments could become the basis for the reasonable charge under medicaid.

The new regulation on utilization review would require a state medicaid plan to provide for utilization review of each item of service, including a physician's in his office or the patient's home. The AMA said it could lead to a set of national standards with authorized treatment for each medical condition limited in a manner set by regulation.

The AMA said it is not opposed to a "claims review" process to that now in operation in many areas or as conducted under medicare. Nor, the AMA added, did it find fault with inquiring into a physician's conduct where fraud is alleged, or where it appears on the basis of medicare claims submitted, that there is reasonable ground for further investigation of a possible fraud.

In another development, the Advisory Commission on Inter-governmental Relations supported a medicaid goal of comprehensive health care for the needy and medically needy by 1975, but proposed changes in financing and operation of the federal-state program.

The report was directed particulary to "the virtually unmanageable fiscal burden imposed on state and local governments by the program." It urged that consideration be given to "broadening medicaid's financial base through increased involvement of the private sector through an employer-employee contributory health insurance system." If Congress approved this proposal, it would be a giant step toward national compulsory government health insurance.

The commission rejected proposals to limit federal sharing in medicare and to establish national eligibility standards for beneficiaries.

The report was made public soon after the Senate voted a $500 million cutback in medicaid funds and when some states already were trimming their medicaid programs because of a financial pinch.

The commission recommended that the states "move vigorously to experiment with methods of increasing the efficiency and economy of health services under the medicaid program," including: (1) Reimbursing hospitals contingent on their operating under an acceptable standard of management efficiency, (2) expanding prior authorization for elective surgical procedures, (3) payment for physicians' services on a basis other than usual and customary charges, (4) use of co-payments for the purchase of specified health care services, and (5) improved techniques of utilization review.

The 26-member Commission is a bipartisan body established by federal law in 1959 to maintain continuing review of the relations among federal, state and local governments. Its membership consists of governors, mayors, county officials, state legislators, and representatives of both houses of Congress, the federal executive branch, and the general public. The chairman is Farris Bryant, former governor of Florida.

* * * *

Congress approved a two-year extension of the

regional medical programs and a one-year extension of the Hill-Burton program of federal aid for construction of hospitals and other health care facilities.

The legislation authorizes appropriation of $65 million in this fiscal year, ending next June 30, and $120 million for the next year for the regional medical programs. The Senate had voted a three-year extension but it was dropped in a House-Senate conference which worked out the compromise.

House conferees, however, emphasized that "this program, although a new established one, has already proved its value and should be considered as a permanent program." They said they accepted the two-year extension to give the next Congress an opportunity to review the program.

The Hill-Burton program was authorized $195 million for hospitals and $100 million for other health care facilities. The conferees abandoned Senate provisions for a new three-year program of federal loans of $200 million a year for hospital modernization and a guaranteed loan program of the same amount with a federal subsidy of interest. These provisions also were left for further consideration by the next Congress.

A total of $40 million was authorized for two years for construction and staffing of rehabilitation facilities for narcotics addicts and alcoholics. As a declaration of Congress, the measure states:

"Alcoholism is a major health and social problem afflicting a significant proportion of the public and much more needs to be done by public and private agencies to develop effective prevention and control."

The program of grants for family health service clinics for migratory agricultural workers was extended for two years with $9 million authorized for the current fiscal year and $15 million for the next year.

* * * *

Congress approved legislation designating Nov. 17-23 as "National Family Health Week." The legislation termed the week "as a means of focusing national attention during the year upon the accomplishments of the American health care system and the central role played by the family physician in the maintenance of superior medical care for Americans of all ages and from all walks of life."

* * * *

The Committee on Emergency Medical Services of the National Research Council has recommended establishment of a nationwide program for the training of ambulance personnel.

The committee proposed guidelines for such training, stating that there is at present "no uniformity in the course of instruction and . . . no generally accepted standards of proficiency to be used by those empowered to certify ambulance personnel."

The committee's recommended guidelines cover: either the standard or advanced first aid courses of the American National Red Cross as a prerequisite, the operation of emergency vehicles, safety precautions at the accident scene, priorities of care, records, the use of communication systems, the use of equipment and supplies, medicolegal problems, and rescue procedures.

The levels of proficiency designed to result from the course proposed in the report are attainable in most areas of the country within a reasonable time, the committee said. However, to realize the greatest life-saving potential, the ambulance attendant of the future should be trained to the same level as lay assistants in emergency departments or medical corpsmen in combat areas; and, ideally he should be qualified to carry out, either independently or through voice communication with a physician, such procedures as tracheostomy, defibrillation, and mechanical external cardiac compression, the committee said.

To attain these goals, the committee said, accredited hospital training programs must be established that will produce professional ambulance attendants and emergency department assistants of the caliber of certified X-ray, laboratory, physical therapy, and other accredited medical technicians.

The ambulance attendant, it added, must be fully engaged in emergency care in an established career pattern that provides attractive compensation, prestige, and recognition deserving of his services as a member of the emergency care team. Where the needs for ambulance services are low so that he is not fully occupied, such as in small communities, he should be an employee of a hospital, where he can maintain his interest and proficiency as an assistant in the emergency department, intensive-care unit, or operating room, the committee said.

* * * *

The President's Committee on Mental Retar-

dation reported that three-fourths of the nation's six million mentally retarded live in urban ghettos and rural slums and were unwanted, unplanned children.

The committee's second annual report, entitled "The Edge of Change," dealt with the high incidence of retarded development among the poor, the shortage of manpower to serve the retarded, and the low quality of residential care available to most of them.

The committee's recommendations called for:

—Education and health services for every child from birth.

—An insurance system to give parents a free choice in selecting needed services.

—Development of national accreditation standards for residential facilities for the retarded.

—Voluntary family planning services for all Americans.

EXPANSION OF FIRST-YEAR ENROLLMENT: 17 SCHOOLS

The previous issue of Datagrams analyzed the experience of those medical schools which were the first to be awarded federal funds under the Health Education Assistance Act of 1963 (PL 88-129) for the construction of teaching facilities.[1] This report is concerned with the experience of nine established and eight new medical schools which were approved and funded in the following six months of FY 65.[2]

The nine established schools planned to increase their first-year classes by a total of 190 students at a cost of $57.7 million for the teaching facility alone. Of this amount, $31.6 million (54 per cent) was awarded by the federal government.[3] Three years later, the September 1968 first-year enrollment of these schools increased to 913 places —25 short of the planned 938 (Figure 1). Assuming that the present rate of expansion will continue at this slower pace, total expansion will not be achieved by 1970 as predicted, but, by 1971 or 1972.

1. Datagrams, Vol. 10, No. 3, September 1968.
2. DHEW, Educational Facilities Branch, Division of Hospital and Medical Facilities. Report to the Surgeon General Regarding Applications for Construction Grants under the Health Professions Educational Assistance Program and Action taken by the National Advisory Council on Education for Health Professions (as of January 18, 1966). January 18, 1966.
3. Figures presented here are for the educational facilities alone. The proportion for the research or service component is not known.

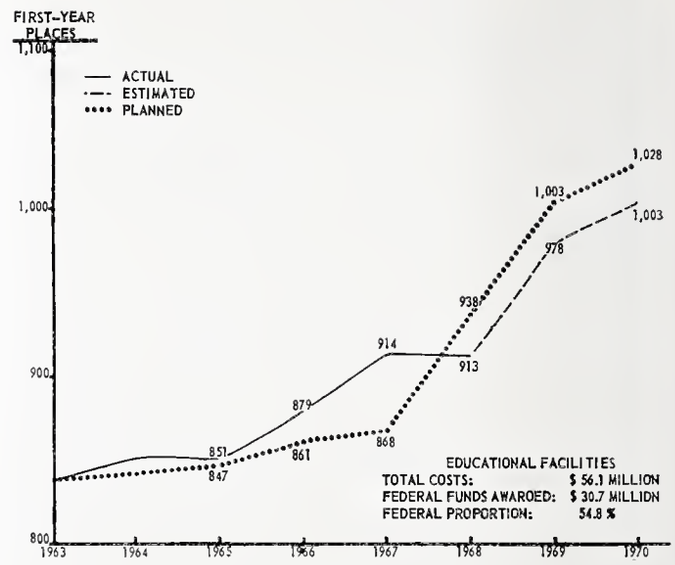


Figure 1:
The number of actual and planned places in nine established medical schools 1963-1970.
During FY 65, applications were approved and funded for eight new medical schools. The total cost of the teaching component for these schools was $68.7 million of which 62 per cent, $42.8 million, was provided by the federal government.

By 1970, the combined goal of these schools was a total enrollment of 517 first-year medical students. In 1968, the planned level was 342. As seen in Figure 2, these schools are approximately 70 places short, reporting 269 new places in 1968. However, should the present rate of growth continue, the goal of 517 places should be delayed no more than one year.

The 24 medical schools discussed in this and the September 1968 Datagrams had planned a total expansion of 885 new places by 1970. Although most of the schools report delays in their building programs at present, the combined record shows that in 1968 the schools are approximately 100 places short of the predicted figures for first-year class expansion.

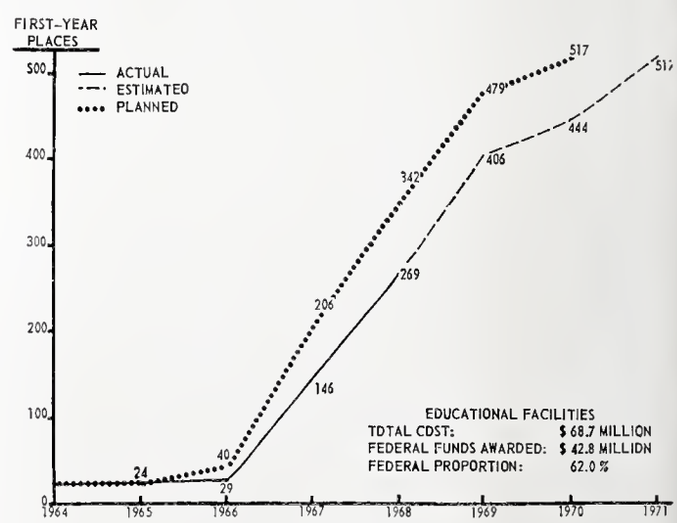


Figure 2:
The number of actual and planned places in 8 new medical schools 1964-1971.

St. Jude Children's Research Hospital announces the establishment of a Retinoblastoma Clinic for the diagnosis and treatment of tumors and other diseases of the retina in children.

For further information write Charles B. Pratt, M.D. or David Meyer, M.D., St. Jude Children's Hospital, 332 North Lauderdale, Memphis, Tennessee 38101.

THINGS TO COME

FUTURE MEETINGS

Mid-Central States Orthopaedic Society:

1969—Des Moines, Iowa, May 8-10, Hotel Ft. Des Moines, F. Eberle Thornton, M.D., President.

1970—Oklahoma City, Okla., April 23-25, Skirvin Hotel, Robert P. Holt, M.D., President Elect.

1971—Colorado Springs, Colo., May 6-8, Broadmoor Hotel.

1972—Little Rock, Ark. Date and hotel site not selected at this time.

* * * * * *

A symposium entitled, "Total Care of the Hemophiliac Patient", will be held on the campus of the University of Oklahoma Medical Center, 800 N. E. 13, in Oklahoma City. The dates are November 8 and 9, 1968. The sponsors include the Clinical Department of the University as well as the State Chapters of the National Hemophilia Foundation in the Southwest region.

OBITUARY

Dr. A. C. Linton

Dr. A. C. Linton of Hector died October 23, 1968, at the age of 85. He was a native of Hector and had practiced medicine there for 61 years. Dr. Linton was a life member of the Arkansas Medical Society. He was an elder of the Cumberland Presbyterian Church, a Mason and a member of the Eastern Star. Survivors include his widow, Mrs. Gertrude Oliver Linton, a son and two daughters, eight grandchildren and a great-great-grandchild.

Dr. T. S. Hare

Dr. T. S. Hare of Crawfordsville died May 8, 1968, at the age of 85. He was born in Vanndale, Arkansas. Dr. Hare received his premedical training at Hendrix College in Conway, Arkansas, and graduated from the University of Tennessee School of Medicine in 1903. He began his practice in 1904 at Vincent, Arkansas. He continued to practice there and in Crawfordsville until his death. He was married to the former Io Swepston for 55 years and she is still living at Crawfordsville. Dr. Hare was a member of the Methodist Church and served as Chairman on the Board of Stewards at the Methodist Church in Crawfordsville.

PERSONAL AND NEWS ITEMS

AAGP Charter

Several physicians in Northwest Arkansas have petitioned to charter a chapter to be known as the "Razorback Chapter of the Arkansas Academy of General Practice". The names listed on the petition were Dr. R. H. McCollum, President; Dr. J. W. Vinzant, Vice President; Dr. Lee B. Parker, Secretary-Treasurer; Dr. B. M. Gardner, Dr. P. L. Hathcock, Dr. C. R. Baker, Dr. J. K. Patrick, Dr. D. B. Baker and Dr. C. D. Buckley.

Dr. Verser Appointed Chairman

Dr. Joe Verser of Harrisburg served as chairman of the Arkansas Doctors for Nixon campaign.

Dr. Smith Re-elected to Academy

Dr. Floyd A. Smith, Jr., of Trumann has been re-elected to active membership in the American Academy of General Practice.

Dr. McCrary Master of Ceremonies at Luncheon

Dr. Robert F. McCrary of Hot Springs was the master of ceremonies for the annual luncheon on October 23 at the 21st annual convention of the Arkansas State Licensed Practical Nurses Association held in Hot Springs.

Dr. Blackmon Opens Office

Dr. James T. Blackmon has opened an office in Arkadelphia for the practice of surgery. He completed his surgery residency at the Crawford W. Long Hospital of Emory University in Atlanta.

Dr. Brogdon Joins Oklahoma University Training Staff

Dr. Preston Brogdon, a native of Springdale, recently left his medical practice at Mitchell, South Dakota, to join the training staff at the University of Oklahoma Medical Center at Oklahoma City. Dr. Brogdon, a graduate of the University of Arkansas School of Medicine, interned at the Arkansas Baptist Medical Center. He practiced medicine in Springdale before he went to South Dakota.

Dr. Whittaker Speaks on Respiratory Problems

Dr. L. A. Whittaker of Fort Smith spoke recently on respiratory problems before Extension Homemaker Club health leaders in a training meeting conducted at the YWCA in Fort Smith.

Stadium Named in Honor of Dr. Crow

The football stadium at the new Jacksonville High School is to be named in honor of Dr. Jan W. Crow, Jacksonville physician who died in a plane crash on September 2, 1968.

Conway Clinic Burglarized

Burglars recently broke into the Conway Clinic, taking close to $1,000 from the safe. Physicians associated with the clinic are Dr. Edwin L. Dunaway, Dr. Charles A. Archer, Jr., Dr. Robert B. Benafield and Dr. Douglas A. Poindexter.

New Medical Facility Opens

Several Harrison physicians recently moved to the new Boone County Medical Center located on North Spring Street. Among the owners of the Center are Dr. Jean Gladden, Dr. Rhys Williams, Dr. William H. Breit, Dr. Paul Mahoney and Dr. Joe Bennett, all of Harrison. Dr. K. A. Siler of Harrison is also an occupant of the new building.

Dr. Dudley Joins Hospital Staff

Dr. Guilford M. Dudley recently joined the medical staff of Harris Hospital and Clinic at Newport. He served a residency in internal medicine at the University of Mississippi Medical School and Vanderbilt University Medical School.

Dr. Henry Addresses Club

Dr. Morriss Henry of Fayetteville addressed the Noon Civics Club of Fort Smith in Novem-

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: 62 RHYTHM: Normal sinus rhythm

P-R: .18 sec. QRS: .08 sec. Q-T: .36 sec.

SIGNIFICANT ABNORMALITIES:

Abnormal S-T elevation, precordiol leods.

INTERPRETATION: Abnormol

Abnormol S-T chonges with no significont chonge from previous record mode 15 months previously.

COMMENT:

Repeated tracings aver severol years revealed no chonge.

The S-T elevotion represents o narmal voriant.

If you think the pink pill for U.R.I. symptoms is built for speed and endurance you're on the right track.

ere is a tablet that begins to relieve mptoms of upper respiratory infec- n quickly—a tablet that works for urs to make it easy for your patient enjoy continuous relief.

ovahistine Singlet combines effective sage of an antipyretic-analgesic th a vasoconstrictor-antihistamine rmulation to relieve not only the ngestion, but also the fever and e aches and pains that almost always company upper respiratory infections.

A total daily dosage of 3 or 4 tablets will normally provide the continuous relief your patient expects. Use with caution in patients with severe hypertension, diabetes mellitus, hyperthyroidism or urinary retention. Caution ambulatory patients that drowsiness may result.

PITMAN-MOORE Division of The Dow Chemical Company, Indianapolis, Indiana.

Novahistine® Singlet decongestant-analgesic

(Each tablet contains: phenylephrine hydrochloride, 40 mg.; chlorpheniramine maleate, 8 mg · acetaminophen, 500 mg.)

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ber. The subject of his talk was "Medicine and the Arkansas Legislature".

New Office Opens in Bull Shoals

Dr. Phillip Osborne of Yellville, a general practitioner and surgeon, has announced the opening of an office at Bull Shoals.

Physicians Elected to AAGP

Dr. James Rowe and Dr. Basil Hendrixson, both of McCrory, and Dr. Jack T. Walker of Magnolia have been elected to active membership in the American Academy of General Practice.

Dr. Johnson Serves as Finance Chairman for Campaign

Dr. J. Albert Johnson of Jacksonville served as finance chairman in the Rockefeller-for-Governor Campaign.

Dr. and Mrs. Hayes Visit Peru

Dr. and Mrs. Harry Hayes of Little Rock went to Lima, Peru, where he was guest of honor for the First Peruvian Congress of Plastic Surgery. He presented two papers at the meeting. They returned to New Orleans where Dr. Hayes attended the annual meeting of the American Society of Plastic and Reconstructive Surgeons.

Club Founded by Dr. Massey

The first regular meeting of the Osceola Future Physicians Club was held in October. Dr. L. D. Massey of Osceola founded the club which is made up of junior and senior high school students planning to enter some field of medicine.

Dr. Pappas to Limit Practice

Dr. James J. Pappas of Little Rock has announced the limiting of his practice to Otology.

Dr. Kerr is Entrant for Jaycee Title

Dr. Robert L. Kerr has been named by the Mountain Home Jaycees as their entrant in the national Jaycee competition to select America's Ten Outstanding Young Men of the Year. Dr. Kerr is a physician and surgeon and is on the staff of the Cheney-Snow-Wilson-Kerr Clinic.

According to the Jaycee nominating committee, "Dr. Kerr has been a valuable asset to Mountain Home as a professional man. In the short period of a year since his arrival in this area, he has developed a practice which constantly demands his knowledge and skill. Before Dr. Kerr's arrival in Mountain Home, Baxter General Hospital staff physicians had to refer all surgical and orthopedic patients to a larger facility, creating hardships for the patients and their families."

Dr. Kerr, who is 29, completed a tour of duty with the Air Force at Orlando, Fla., where he served as a general surgeon and orthopedic surgeon for two years before moving here. Prior to his discharge from the service, he was awarded the Air Force Commendation Medal for meritorious service in the surgery division.

He attended Arkansas A&M College, Monticello, from 1956 to 1959. From 1959 to 1963 he attended the University of Arkansas School of Medicine and received his degree as a physician in 1963 at the University Medical Center at Little Rock, where he also served his internship. He entered the Air Force after a year of residency at the Veterans Administration Hospital at Little Rock.

Dr. Kerr, his wife, Mary Ann, and their three children, Kenneth Lee, William Lamar and Kara Lynn, live on Oak Knoll Drive. They are members of the First Baptist Church of Mountain Home.

An awards banquet for the men who are selected as America's Ten Outstanding Young Men has been scheduled for Jan. 17-18 at Syracuse, N. Y. Each winner will receive the silver Jaycee hands—a trophy presented in 1946 to John Fitzgerald Kennedy, in 1947 to Richard Nixon, and in 1956 to Dr. Tom Dooley.

Dr. Saltzman Heads 13-State TB Conference

At a recent meeting of the Southern Conference of the National Tuberculosis and Respiratory Association, held in Jacksonville, Fla., Dr. Ben N. Saltzman of Mountain Home was elected to serve as president of the conference for the coming year.

The conference is composed of workers in the field of tuberculosis and respiratory disease from 13 Southern states.

Dr. Saltzman has been a member of the advisory council and governing council of the Southern Tuberculosis Association for many years. He also serves as a director and is past president of the Arkansas Tuberculosis and Respiratory Disease Association, and is that group's representative to the national board.

A graduate of the University of Oregon Medical School, Dr. Saltzman holds a master of arts degree in psychology. He served as a medical officer in World War II and is retired from the Air Force Reserve.

For more than 22 years, he has been engaged in the general practice of medicine in Mountain Home and heads a medical clinic there.

Dr. Saltzman has held numerous national, state and local offices. Among those are chairman of the Council on Rural Health of the American Medical Association; former chairman and present member of a committee of the American Academy of General Practice; director of Rotary International; director of the Arkansas Division of the American Cancer Society; director of the Arkansas Association for Retarded Children; treasurer of the Arkansas Medical Society; past president of the Arkansas Academy of General Practice; and member of the Governor's Advisory Board for Comprehensive Health Planning; past president and present vice president of the Tri-States Association for Cripples; and member of the board of directors of the Hospital for Crippled Adults in Memphis.

He has also maintained his interest in general aviation, serves as a Federal Aviation Agency medical examiner and is past vice president of the Flying Physicians Association.

Dr. Cheney Area Heart Chairman

Dr. Max Cheney of Mountain Home has agreed to serve as one of 14 regional chairmen working with the Cardiopulmonary Resuscitation Program of the Arkansas Heart Association.

The Heart Association is conducting a statewide program in this combination of mouth-to-mouth breathing and closed chest heart compression by offering instruction in the technique to medical and other hospital personnel who wish to avail themselves of the training.

The program will be offered first to medical personnel and then will be extended to include police and fire departments, rescue squads, workers in high industry and lifeguards.

Dr. Cheney will serve as regional chairman and representative of the Heart Association Cardiopulmonary Resuscitation Committee in Carroll, Boone, Mario, Baxter, Fulton, Izard, Newton and Searcy Counties.

Lake Area Rotary Membership Rises

Dr. Ben N. Saltzman of Mountain Home, a past district governor of Rotary International, was a guest of the Bull Shoals-Lakeview Rotary Club at its meeting last week.

Dr. Saltzman was in charge of induction ceremonies for Chet Treece of Leisure Hills, a new member of the club. His enrollment brought the total membership to over 50.

The group met on Wednesday at Gaston's Restaurant in Lakeview, with Jim Gaston presiding. Attending were 42 persons, including out-of-state guest Karl Klauser of Montecito, Calif., and Al Notter Jr. who is home on leave from Vietnam.

The guest speaker was Mrs. Vada Sheid of Mountain Home, state representative for District 5, who spoke on "Election Laws."

PROCEEDINGS OF SOCIETIES

Council Minutes, Arkansas Medical Society October 27, 1968

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, October 27, 1968, at the Hotel Sam Peck in Little Rock. Present were: Townsend, Thomas, Fowler, Shuffield, Saltzman, Raney, Gray, Edwards, Bell, Lazenby, Wynne, Wood, McCrary, P. Kolb, Applegate, Kirby, Long, Koenig, Chudy, Whittaker, J. Kolb, Norton, John T. Herron, George K. Mitchell, John Harrel, Walter J. Wilkins, Winston K. Shorey, Nils C. Pehrson, Mr. H. T. Gardner, Mr. Paul Peeples, Mr. Walter Tucker, Mr. Sam Butler, Mr. Engene Warren and Mr. Paul Schaefer.

The Council transacted business as follows:

I. Upon the motion of Thomas and Koenig, the Council voted to pay expenses for Dr. Ben Saltzman to represent the Society at a Comprehensive Health Planning Meeting in Miami preceding the AMA convention.

II. Upon the motion of Thomas and Long, the Executive Vice President was directed to write the AMA recommending Dr. Joseph D. Calhoun for appointment to the AMA Interspecialty Committee.

III. Dr. Thomas advised the Council that, at a meeting on October 15th, it had been disclosed that the University of Arkansas

Medical Center was working on an application for a continuing education grant under the Regional Medical Program. Since the Medical Society's application for a grant for continuing education would have been in competition with that of the Medical Center, the Council voted, upon the motion of Thomas and Long, to discontinue development of the Medical Society's grant application and to commend the school's efforts.

IV. Mr. Paul Peeples of Arkansas Blue Cross-Blue Shield discussed the requirements for a successful operation of a usual and customary fee schedule for Blue Cross-Blue Shield private subscribers. A copy of the outline presented by Mr. Peeples is attached hereto and made a part of these minutes. Upon the motion of Shuffield and Saltzman, the Council voted to approve the plan subject to presentation to the House of Delegates at its meeting on December 15.

V. Dr. Nils Pehrson, president of the Arkansas Society of Pathologists, discussed the desirability of having legislation enacted to license laboratory technicians. Upon the motion of Koenig and Thomas, the Council authorized Mr. Schaefer and Mr. Warren and the State Board of Medical Examiners to work with the Society of Pathologists to develop a workable law.

VI. Chairman Townsend reported for the information of the Council on a meeting of the Executive Committee with the Phillips County Medical Society.

VII. Dr. Walter J. Wilkins, chairman of the Society's Medical Study Committee to the Department of Correction, read a report on the Committee's investigation of health measures in the State prison system. A copy of the report is attached hereto. Upon the motion of Thomas and Fowler, the Council voted to direct that the report be published in the Journal of the Arkansas Medical Society.

VIII. Mr. Sam Butler, president of the Arkansas Blue Cross-Blue Shield, presented figures on premium income for Blue Shield as compared to payments under the Blue Shield portion of the plan. The Council questioned whether or not the Blue Shield portion of the plan was subsidizing Blue Cross aspects of the plan for the benefit of the hospitals and at the expense of Blue Shield subscribers. Upon the motion of Payton Kolb and Edwards, the Council voted to ask the Executive Committee of the Hospital Association and the Executive Committee of the Arkansas Medical Society to meet and discuss hospital charges and payments by Blue Cross-Blue Shield.

IX. Dr. John Harrel discussed proposed Constitutional Amendment No. 53, known as the "kindergarten amendment", and pointed out that it was premissive legislation to allow kindergarten and adult education. Upon the motion of Long and Saltzman, the Council voted to endorse the amendment.

X. Dr. Thomas outlined plans for the winter meeting of the Arkansas Medical Society and the special session of the House of Delegates to discuss legislation to be introduced before the Arkansas Assembly and to approve or disapprove the Blue Cross-Blue Shield "usual and customary plan" for private subscribers.

XI. Dr. Verser, as secretary of the State Medical Board, discussed the licensing of foreign graduates. He reported that the Medical Board had voted not to change the present law. Upon the motion of Edwards and Applegate, the Council requested Dean Shorey and Verser to continue to work on the problem of licensing foreign graduates in an attempt to come to some solution.

XII. Dr. Thomas discussed emergency health care service in Arkansas, reporting the Department of Health, Education and Welfare's interest in the matter. He recommended that the chairman of the following committees be appointed to constitute a special committee to work on the problem: Traffic Safety Committee, Rural Health Committee and the Public Health Committee. It was further directed that the chairman of the Council appoint the chairman of the special committee. Dr. Joseph Norton was selected for that position. Motion by Thomas and Edwards.

XIII. A discussion of the responsibility and lim-

itations on nurses' practice was held. Upon the motion of Wood and Applegate, it was voted to go on record in opposition to nurses being allowed to give injections unless under the direct order of a physician.

Approved: T. E. Townsend, M.D.
Chairman of the Council

SUPPLEMENT TO COUNCIL MINUTES
Recommendations for Implementation Of the Blue Shield Usual, Customary, and Reasonable Charge Program

Presented by Paul J. Peeples, Manager
Hospital and Professional Relations Division

Mr. Chairman and Members of the Council:

Since May, 1967 when the Medical Society passed a resolution requesting Blue Shield to develop a usual, customary, and reasonable charge program, a lot of water has passed under the bridge. Some of the original ideas pertaining to this program have changed, in fact, some of the national trends have been altered and certainly, these were taken into consideration in the recommendations to this Council.

You will remember that the original usual, customary, and reasonable charge program was to be implemented in four steps.

1. Confidential Register of Professional Charges.
2. Presentation to Council for endorsement and to House of Delegates for ratification.
3. Present program for approval to Board of Trustees of Arkansas Blue Cross-Blue Shield.
4. Implement program.

The Confidential Register of Professional Charges was mailed to all physicians in November, 1967 and was to be completed and returned by February, 1968. On February 20, we had received 312 surveys; some 900 to 1,000 surveys were needed to supply sufficient statistical data to determine prevailing ranges. This needed number was not received until July, 1968; thus, the first step is completed.

Some comments need to be made here pertaining to range determinations. At the onset of Medicare in 1966, there were 75 different range determinations — one for each county. Many problems developed with this system. I'm sure you may have encountered some of these since July 1, *1966*.

On August 18, 1968, Management at Blue Cross-Blue Shield presented to your 21-Physician Committee recommendations to update and combine the 75 locations into only 5 areas. These 5 areas were selected on the basis of shared characteristics such as population, number of physicians, per capita income, etc. *In no event would physician's charges be used to determine locations.* This recommendation was approved and these prevailing ranges are nearing completion at the present time. In fact, we plan to implement the updated ranges for Medicare and Champus no later than December 1, 1968. We had hoped to be ready by the middle of November; however, at the present time, indications are it will be December 1.

A usual, customary, and reasonable charge program must contain certain basic elements in order for it to accomplish its purpose. There are many reasons why these basic elements must be included. I will only mention two.

1. Proper rating of covered services. Whatever benefits are offered the buying public, they must be rated properly. If these rates were high, certainly, the product would not be marketable. If the rates were too low, Blue Shield could not continue to provide the services.

2. Product must be marketable. IT MUST SELL. A usual, customary, and reasonable charge program must be marketable. If it were possible for this group to develop a perfect usual and reasonable charge program today and if the public would not purchase it, then all of our efforts would have been for naught, in fact, we would be several steps further down the road toward Federal controls in the health care field.

Proper rating and a marketable product require the following six basic elements in a usual, customary, and reasonable charge program.

1. Fee payments must be based on the individual physician's usual charges to his patients (from surveys or internal statistical data).
2. To be eligible for full payment, the physician's usual charges may not exceed the range of charges for similar services under similar circumstances in the same medical market area.
3. From participating physicians, there must be a *guarantee* that the Plan's payment will be accepted as "payment-in-full" for covered services regardless of the patient's in-

come (except in unusual cases, medically reviewed, for which additional basic payments may be made — without additional charge to the subscriber).

4. Where a Plan does not have participating agreements with physicians, there must exist some mechanism for negotiation with all physicians whereby the Plan's payment is accepted as "payment-in-full" for covered services—to the end that there will be no charge to the subscriber for the covered service.
5. The Plan must have an effective utilization review mechanism—it may involve cooperation with medical societies or may be internal—but it must be capable of being effective.
6. The Plan and the Medical Society must have some mechanism to assure that undue escalation in the costs of professional services does not occur.

The following recommendations submitted to you include these basic elements.

RECOMMENDATIONS

1. We suggest that all physicians be considered as participating physicians in this program. Many discussions pro and con pertaining to participating physicians have occurred since the mailing of the Confidential Register of Professional Charges. The consensus of opinion among physicians seems to be that maybe individual contracts have served their purpose, and a more effective mechanism within organized medicine be established to negotiate for physicians.
2. The Medical Society would agree to establishing adequate review mechanisms which would protect the subscriber from bearing the cost of unusual charges that could not be justified by medical review.

   The 21-Physician Committee of your Society has already established review mechanisms and have them in operation to review unusual situations.
3. For those physicians who have not given us updated charges, we believe that further requests could be made for a completed charge list or we could build their charge list from existing claims information. Payment to physicians who have not submitted recent charge information would be based on usual charges within the prevailing range which have been compiled from historical data.
4. The following procedure would be used in the payment of physician's claims under this program:
   A. Payment would be automatically made when the physician's charge is usual and within the prevailing range.
   B. If the physician's charge is different from his usual charge, then payment would be made when the Internal Medical Staff and/or Medical Society Review Committees reviewed the case and agreed that the unusual charge was medically justified.
   C. If a physician's claim carried an unusual fee and the Medical Society Review Committee agreed that the charge was unreasonable, a reasonable payment would be made to the physician based on the opinions of the medical review.
   D. If a physician disagrees and takes issue with the Plan and Medical Society Review, the Medical Society should then stand ready to support the Plan's action in defending the subscriber from any additional charges.
5. The mechanism for negotiation with all physicians, whereby the Plan's payment is accepted as "payment-in-full", will rest very heavily on review committees which are thoroughly representative of organized medicine and practicing physicians within the State. The decisions of these committees should substantially influence the payment of charges and acceptance of fees by physicians. And, unless their decisions are contradictory to board policy, they should be final and binding with regard to payment of charges and acceptance of fees by physicians.
6. The agreement with the Medical Society should make provisions for a physician to revise his professional charges. If the revision of charges falls within the prevailing range, it would become effective ninety days after received by the Plan. If the charge exceeds prevailing range, it would be recorded and be included in updating ranges. These ranges will be updated at least annually.
7. If a physician prefers to collect his fees from the patient and will provide the patient a completed form, Blue Shield would reim-

burse the patient 100% of the usual, reasonable and customary charge.

These recommendations were influenced greatly by conversations with your leadership of the Medical Society. Your leadership believes and has convinced Management at Blue Cross-Blue Shield that organized medicine must negotiate for its colleagues, and by the same token, be prepared to cope with unusual and unpleasant situations that cannot be justified by the profession.

You will recall we mentioned that this program was to be implemented in four steps. The first step is completed. After our presentation today, we hope the Council will endorse and recommend to the House of Delegates on December 15 for ratification. We also hope to present these recommendations to the Blue Cross-Blue Shield Board on December 19 for approval.

The Federal Employees Program will be implemented January 1 on a usual, customary and reasonable charge program. This will include some 32,000 people in Arkansas. The regular Blue Shield program will follow immediately just as soon as benefit variations and rates are available. These regular Blue Shield programs will vary in covered services from a full scope of benefits to step-down methods in form of deductibles and co-insurance. The step-down methods will be used to reduce rates.

Mr. Chairman, I present these recommendations to the Council for their endorsement.

SUPPLEMENT TO COUNCIL MINUTES

Report of Medical Study Committee To the Department of Correction, State of Arkansas

The Arkansas Medical Society appointed the Medical Study Committee to the Department of Correction of the State of Arkansas. The members of the committee are: A. W. Lazenby, Joe Scruggs, W. O. Young, T. J. Smith, Paul Henley, Howard Schwander and Walter J. Wilkins, Jr. Each meeting was attended by Dr. Willie Harris, Dr. T. E. Townsend and Dr. Payton Kolb. Also meeting with us have been Mr. Victor Urban, Superintendent of the Department of Correction, Dr. Winston Shorey, Dean of the University of Arkansas Medical School, and Dr. George Jackson, Superintendent, Arkansas State Hospitals.

The first project consisted of a tour of the facilities and discussion with people involved in the care of the patients including free world employees at Cummins and Tucker, and trusty workers in the plasma unit in order to evaluate the problem. We also met with Dr. Jackson and Dr. Shorey in an effort to relate the problems to the institutions represented by these men and to the manner in which these institutions might participate effectively in the care of prisoner health problems. In addition, Mr. Urban corresponded with other institutions regarding their medical care program and we have information from Mississippi State Penitentiary, Tennessee State Penitentiary Hospital, and the Missouri State Penitentiary.

The second phase of our committee work consists of categorizing the immediate problems or temporary solutions as compared with the long range problems and permanent solutions.

The third phase will consist of recommendations for each of these categories in order to provide adequate medical care for the prison population.

Several aspects of medical and health care could be considered by the Committee. These include:

1. Sanitation
2. Food and diet
3. Preventive medicine
   - A. Inoculations
   - B. Periodic examinations
     1. Physical exams
     2. X-rays
     3. Psychiatric exams
     4. Entrance exams which might be included in classification of the prisoners on admission
4. Medical treatment
   - A. Psychotherapy and counseling and admission psychiatric evaluation
   - A. Care of the sick including physician coverage, medicines, building facilities, equipment and therapeutic procedures.
5. Research programs including plasma program
6. Determination of "terminal illness" (possibly should be committee function)

At the meeting coverage and care of illnesses was the principal subject considered along with consideration of the inter-relation of research programs, both as possible sources of finances and the plasma program.

It was established that the present care available consists of part-time physician, Dr. Harris from England, who visits one-half day three times

a week as coverage for Tucker and Cummins. The dentist visits one-half day per week. Ophthalmologist is now visiting one-half day per week. A surgeon holds clinic one-half day per week. The present facilities consist of the dispensary building at Cummins with 24 beds in barracks style for the sick, and about 20 beds in the other half of the building in barracks style for psychiatric patients. This building is air conditioned and includes an examining room, a waiting room, a small operating room, dental room, a laboratory and a pharmacy.

The dispensary is supervised and conducted by a free world administrator who has a free world pharmacist and a free world technician working with him. Sick call and evaluation of the patient is performed by trusties who act as corpsmen. These trusties are under severe pressure to admit any patient to the dispensary. They must return to prison dormitory when the work day is complete and they are subject to reprisals for failure to admit a patient to the dispensary. Also, there is the reciprocal possibility of being in a position to grant and/or peddle favors. Several have sustained severe beatings by other inmates as a result of their unpopular disposition of a case. The visiting MD sees patients three days a week and in case of controversial illness or questionable admission, Dr. Harris can be called to drive from England as well as in the case of a seriously ill patient. This is inefficient and only resorted to when necessary. Obviously the trusty system depends on unqualified personnel. In case of an injured patient or an emergency he is referred to the Lazenby and Blackwell Clinic in Dumas.

There is no psychotherapy although a few psychiatric "patients" are incarcerated in the dispensary at Cummins. Beginning in May 1967 all initially admitted inmates received psychological evaluation on admission, but no follow-up has been possible. Facilities at Tucker were nonexistent until recent weeks when a portion of death row was remodeled into a six-bed ward, and with an examining room and dental chair for sick call.

There are now 60 inmates in need of surgery. They are customarily treated at the State Hospital. However, in practice when one or more patients are transported to the State Hospital, they will usually sit there all day and not be seen, and are told to return to the prison and come back another day.

There have been a continuing series of hepatitis cases and now there are six hospitalized at Cummins. This is at present under investigation by the Public Health Service but needs continuing, on-the-spot, medical supervision and investigative procedures. Records have previously been very poor and it is significantly evident that the failure to solve medical problems of prisoners leads to disciplinary and behavior problems. It is also evident that the entire institution is in need of a complete renovation.

The needs can be summarized as follows: It is estimated that for 1,500 inmates usually ten beds should be available for hospital patients and ten for the ambulatory sick, or space for 20 ill persons at a time excluding epidemics or mass casualties. It is anticipated that eight or ten persons are in need of psychiatric care at all times, and a patient load of 50 to 75 persons requiring outpatient psychiatric care regularly can be anticipated.

There is now a backlog of 60 inmates needing surgery. Certainly, all discharged personnel should have needed remedial surgery while serving time so that they will be employable when returned to the free world. Their problems are great enough without the added burden of inability to work and feed a family because of a hernia or other disabilities.

The dispensary operation and the care of patients with decisions regarding admissions should be only by free world employees, free from any reprisals. Full time physician coverage is needed. A preventive medicine program and inoculation program is needed. Health instruction to inmates is needed.

Supervision of prison nutrition should be included and supervision of the plasma program could be included. Sanitation of the prison should be supervised by this physician. The possibility of a training program for inmates as lab technicians, orderlies or other paramedical assistants should be considered, and proper facilities at Tucker are needed. The recommendations in general are as follows.

First of all, it is felt that Dr. Harris should be commended for his efforts. It is felt that it is the responsibility of the State of Arkansas to provide health care for the prisoners. It is also unanimously agreed that the severe short-comings of medical care now existing can only be remedied by full-time medical coverage.

The position of a full-time physician for the prisons has been established and salary has been authorized. The difficulty in attracting a full-time physician under the present circumstances has been apparent. The most practical solution for our local situation would appear to require the establishment of the position at a teaching level on the faculty and staff of the University of Arkansas Medical School, and involving the teaching program to the mutual benefit of the prisoner patients and the teaching program. One single individual should be responsible for the program in order to provide continuity and to provide familiarity with the unique problems and particular personalities of the patients involved. Opportunities for research programs and thereby research grants would be available. Supervision of plasma program would be included. Technical training of inmates in paramedical fields would be possible.

In essence, the general purpose of the medical care of the prison population is to diagnose and correct any physiologic malfunction the inmate may have when he enters; diagnose, treat and correct any illness or injury that occurs to him while imprisoned; and, in general, to release him to society in the best possible physical and mental condition.

Categorizing the immediate and long range needs in health care resulted in the decision to continue with the present arrangement for medical coverage until a more satisfactory long range plan can be developed which will be founded on the principle of full time coverage. In order to regain and enhance the efficiency of present coverage, a list of recommendations amounting to a Standard Operational Procedure was supplied by Dr. George Jackson and a copy of these are attached and these procedures have been implemented. Dr. Jackson has been sincerely interested in this program, and has been most helpful in past years as well as currently, and he has emphasized his willingness for the State Hospital to participate in the care of the prisoners. As a temporary measure, some of the prisoners needing surgery received surgical care at the hospital in England, Arkansas, under the Rehabilitation Program with surgical services being provided by a surgeon from Little Rock. Henceforth, surgical care will be resumed at the State Hospital as it was previously.

An approach to the long range solution has been undertaken. Dr. Winston Shorey has also indicated his sincere interest in the problem we face and his desire to help work out a more unified system of prison health care. He and Dr. Jackson agree that the Arkansas University Hospital and the Arkansas State Hospital (for mental diseases) have possible areas of service to offer by virtue of their being state institutions. The two doctors have offered to collaborate in delineating a feasible sphere of activity for each; and Dr. Shorey has offered to establish a faculty committee to explore the possible participation of the University Hospital and Medical School in providing a system of medical care involving a full time medical officer. He concurs in the recognition that the prison population offers an exceptional opportunity for a research population and that research projects such as conducted elsewhere could probably help finance a program of physician care coupled with research. He also recognizes that residence at Cummins is not likely to be attractive or palatable to a career academician. It was concluded that the Department of Corrections should be encouraged to seek a full time medical officer, but that Dr. Shorey is to pursue with the medical school administration and his committee the possibilities of involvement of the University Hospital in the care of prisoner patients and the feasibility of giving title and faculty rank to a position with dual responsibility of supervising a research program through the medical school, possibly supervising the plasma program teaching the house staff with these programs and with the cases involved, and also supervising the medical care of the prisoners.

The function of our committee has now progressed into phase three, and future reports will be concerned with the solution for the long range programs. In closing, let me thank each of those people mentioned in the opening paragraph for their great assistance and kind support in the desperately needed work of this committee.

Respectfully submitted,
W. J. Wilkins, Jr., M.D., Chairman
Joe Scruggs, M.D.
Wayne Lazenby, M.D.
W. O. Young, M.D.
T. J. Smith, M.D.
Paul Henley, M.D.
Howard Schwander, M.D.

Supplement to Report of Medical Study Committee To the Department of Correction, State of Arkansas

ARKANSAS STATE HOSPITAL
4313 West Markham Street
Little Rock, Arkansas
October 4, 1968

Dr. W. J. Wilkins, Jr.
The Doctors Clinic
1421 Cherry Street
Pine Bluff, Arkansas 71601

Dear Doctor Wilkins:

As a follow-up to our meeting on September 19th, we would like to make a few recommendations which we feel will improve services to the penitentiary by our medical and surgical service (Shuffield Infirmary).

(1) That the penitentiary physicians submit a list of inmates in need of surgery, listing them in order of priority.

(2) That the penitentiary designate one person as their liaison. This individual will keep schedules of all clinic appointments and schedule trips to clinics. This person will see that the necessary clinical records accompany the inmates to clinics and that records of treatment from the State Hospital be returned with the inmate, and a record made if the inmate is to be returned to the State Hospital for follow-up care. This information should also be entered in the penitentiary infirmary records.

(3) That Mrs. Coates be designated by the State Hospital to be the liaison in making appointments for clinics and make arrangements for transfers for hospitalization here. MO 6-0181 Extension 351.

(4) That all emergency cases, particularly injury cases, occurring after 4:30 P.M. or on weekends be sent directly to the Emergency Room at the Medical Center. After examination there, if hospitalization is indicated, the inmate can then be referred to the State Hospital for admission to the Infirmary.

(5) That when clinics at the State Hospital have been canceled due to a holiday or absence of a doctor or resident, the penitentiary will be notified in advance.

(6) That when inmates have been referred for x-ray after being seen in a clinic that someone be designated to see that instructions for preparation for x-rays be carried out. Preparation starts the day before the examination and each inmate will be given an instruction sheet at the time the appointment is made for x-ray. Sample copies attached.

NEW MEMBERS

Dr. R. Barry Sorrells

DR. R. BARRY SORRELLS is a new member of the Pulaski County Medical Society. Dr. Sorrells is a native of Ada, Oklahoma. He received a B.S.M. degree from the Vanderbilt University, Nashville, Tennessee in 1957. Dr. Sorrells was graduated from the University of Arkansas School of Medicine in 1961. He interned at the United States Public Health Service Hospital in Boston, Massachusetts. Dr. Sorrells served a residency in General Surgery at the United States Public Health Service Hospital in San Francisco, California, from 1963-1965. He completed a residency in Orthopedic Surgery at the University Hospital in Little Rock in 1968. Dr. Sorrells is on the teaching staff of the Veterans Administration Hospital and the University Medical Center.

Dr. G. Doyne Williamms, Jr.

DR. G. DOYNE WILLIAMS, JR., has recently been accepted for membership in the Pulaski County Medical Society.

Dr. Williams is a native of New Orleans, Louisiana. He received a B.A. degree from Hendrix College in Conway, Arkansas, in 1957. Dr. Williams was graduated from the University of Arkansas School of Medicine in 1961. He interned at Duke Hospital in Durham, North Carolina. Dr. Williams completed a residency in surgery at the University Hospital in Little Rock in 1966. From 1966 to 1968, he was a Captain in the Marine Corps.

Dr. Williams is an Assistant Professor of Surgery at the University of Arkansas Medical Center.

Dr. Robert L. Hill

DR. ROBERT L. HILL has recently been accepted for membership in the Garland County Medical Society.

Dr. Hill is a native of Memphis, Tennessee. He attended Hendrix College in Conway, Arkansas. In 1961, Dr. Hill was graduated from the University of Arkansas School of Medicine in Little Rock. He stayed on at the Medical Center in Little Rock for his internship. From 1962 to 1964 Dr. Hill served in the United States Air Force. Following his military service he returned to the University Hospital where he completed a residency in General Surgery.

Dr. Hill is now practicing General Surgery at 901 Medical Arts Building in Hot Springs, Arkansas.

Dr. Jasper L. McPhail

The Pulaski County Medical Society has announced that DR. JASPER L. McPHAIL is a new member of that Society.

Dr. McPhail is a native of Slate Spring, Mississippi. He received an A. A. degree from Clarke College in Newton, Mississippi in 1950 and a B. S. degree from Mississippi College in Clinton, Mississippi, in 1952. Dr. McPhail was graduated from Baylor University College of Medicine, Houston, Texas, in 1956. He interned at the University Hospital in Jackson, Mississippi. From 1957 to 1961, Dr. McPhail was in residency training in General and Thoracic Surgery at the University Medical Center in Jackson, Mississippi. From 1961 to 1962, he was in a Thoracic Surgery residency at the John Peter Smith Hospital in Fort Worth, Texas. Dr. McPhail completed a residency in Cardiovascular Surgery in 1957 at Baylor University. He is certified by the American Board of Surgery and the American Board of Thoracic Surgery. He holds memberships in the American College of Surgeons, American College of Chest Physicians, and the American Association of Medical Colleges.

Dr. McPhail is Associate Dean and Associate Professor of Surgery at the University of Arkansas Medical Center.

Dr. F. T. Fraunfelder

A new member of the Pulaski County Medical Society is DR. F. T. FRAUNFELDER.

Dr. Fraunfelder is a native of Pasadena, California. He received a B. S. degree from the University of Oregon at Portland, Oregon. He was graduated from the University of Oregon Medical School in 1960. Dr. Fraunfelder interned at the University of Chicago in Chicago, Illinois. He received further training at Johns Hopkins University School of Medicine, Wilmer Institute. Dr. Fraunfelder was a Captain in the United States Army from 1963 to 1964. He completed a residency in Ophthalmology in 1967. Dr. Fraunfelder is certified by the American Board of Ophthalmology. He holds memberships in the Association for Research in Ophthalmology and Association for University of Professors in Ophthalmology.

Dr. Fraunfelder is Professor of the Department of Ophthalmology at the University of Arkansas School of Medicine.

BOOK REVIEWS

INFECTION CONTROL IN THE HOSPITAL, Various Authors, illustrated, pp. 140, published by The American Hospital Association, Chicago, 1968.

Pitted Keratolysis

K. A. Gill, Jr., and L. J. Buckels (Naval Medical Field Research Lab, Camp Lejeune, NC)
Arch Derm 98:7-11 (July) 1968

Pitted keratolysis, a disease characterized by shallow pits in the stratum corneum, occurred in 53% of 387 Marine volunteers. The volunteers' feet were wet continually for a period of three days or more. An incidence of 22% was found among 100 Marines who had not participated in training under wet conditions. The large number of cases reported here is significant since only ten cases of pitted keratolysis have previously been reported in the American Literature. Pitted keratolysis was more prevalent in men with hyperhidrosis. The lesions were usually asymptomatic and cleared without treatment when volunteers were removed from the wet environment.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

PIGEON BREEDERS' DISEASE

A hypersensitivity pneumonitis was diagnosed in twelve patients who were pigeon breeders. Antibodies against various pigeon antigens were found in sera from all the patients. Avoidance of contact with pigeons is essential in preventing recurrence of the disease.

Twelve pigeon breeders with a hypersensitivity pneumonitis, seen over a period of nine years, were studied for clinical, roentgenographic, and pathologic features. The patients had a history of chronic or episodic acute respiratory and systemic symptoms.

Pulmonary function tests were performed, chest roentgenograms and lung scans were obtained. Other laboratory tests included a hemogram, erythrocyte sedimentation rate, urinalysis, and serum protein electrophoresis.

Skin reactivity to pigeon antigens was determined by the intradermal injections of a nonirritating concentration of pigeon serum or pigeon dropping extract, and serum samples were also examined for antibodies. Lung tissue was obtained by biopsy from two patients.

All the patients were men ranging in age from 34 to 60 years who had been exposed almost daily for from two to 38 years to up to 500 birds. Duration of the disease symptoms was from eight months to 20 years.

Clinical features suggested that the disease could occur in three major forms: acute, subacute, and chronic.

Ten of the 12 patients had the acute form, with sudden onset of chills, fever, cough, dyspnea, and myalgia which lasted up to 18 hours after exposure to pigeons or pigeon material. The severity and duration of each episode depended on the sensitivity of the breeder and on the duration and intensity of exposure.

Five of the breeders with acute symptoms had abnormal chest X-rays. The most consistent X-ray pattern during acute phases of the disease was that of a combination of coarsening of bronchovascular markings, fine sharp nodulations, and reticulation throughout the lung parenchyma.

LUNG FUNCTION

When pulmonary function tests were performed one of the acutely ill breeders was found to have had normal functions; two showed only moderate obstruction; one had diminished diffusion and slight restriction; and one had slight restriction with moderate obstruction.

Lung scans of nine of the patients with the acute form of the disease revealed abnormalities in two. These consisted of diffuse or localized diminution of the blood flow to various areas of the lung. Eight with this form of the disease had immediate wheal and flare reactions to pigeon serum injected intradermally.

Two breeders had the subacute form of the disease. In one the initial phase was characterized by the insidious onset of unremittent systemic and lower respiratory symptoms resembling bronchitis. In the other, pulmonary function tests revealed restriction and diminished diffusion. Lung scans were normal in both.

The chronic form of pigeon breeders' disease developed in one breeder after prolonged and intense contact with pigeons. Onset of dyspnea without symptoms was insidious. The skin reacted to pigeon antigens and antibodies were present in sera.

Clinical manifestations of pigeon breeders' disease can be reproduced if sensitive breeders are exposed to pigeon materials. In the pathogenesis of the disease, the presence of high titers of antibodies to pigeon antigens favors the role of a hypersensitivity reaction. If contact with pigeons is avoided, relief of symptoms usually follows, clinical and laboratory values return to normal, and a reduction in antibody titers and skin reactivity to pigeon antigens occurs.

Jordan N. Fink, M.D.; Abe J. Sosman, M.D.; Joseph J. Barboriak, Ph.D.; Donald P. Schlueter, M.D.; and Richard A. Holmes, M.D. *Annals of Internal Medicine*, June, 1968.

FEW CASES REPORTED

Although there are approximately 75,000 pigeon breeders in the United States, few cases of the disease have been reported here. This may mean that the disease is relatively rare or, more likely, that many breeders with respiratory complaints are not diagnosed as having the pneumonitis.

There are, of course, other examples of hypersensitivity pneumonitides which follow inhalation of organic dust. These include farmers' lung, bagassosis, maple bark disease, and sequoiosis. This last is probably due to antigens of redwood dust. Mushroom pickers may also develop a respiratory disorder resembling pigeon breeders' disease that is related to the inhalation of thermophilic actinomyces in the mushroom compost.

In pigeon breeders' disease, recurrent systemic and lower respiratory signs and symptoms, beginning several hours after contact with pigeons, are usually present in the typical, or acute, form. Sometimes the response is insidious, with lower respiratory signs and symptoms. This subacute form is similar to that in sensitive individuals caring for parakeets.

In some breeders there is indication that more than one form of the condition can develop in an individual at different times. A few individuals have hay fever or asthma-like symptoms.

The presence of hypersensitivity pneumonitis should be considered in any bird handler with respiratory symptoms, whether or not the birds are pigeons. Chest X-ray films are sometimes normal and thus of no help in diagnosis.

DIAGNOSTIC INDICATIONS

History and physical and laboratory findings are usually sufficient to suggest a diagnosis of the disease. However, in atypical cases open-lung biopsy may be necessary. The histologic features of the acute form, especially the presence of clusters of foamy histiocytes, appear to be a diagnostic factor.

Hypersensitivity pneumonitides should be differentiated from nonspecific interstitial pneumonitides and chronic obstructive pulmonary disease. The main features found in patients with pulmonary disease due to hypersensitivity to organic dusts are the association of symptoms and symptom-free periods with, respectively, exposure and avoidance of organic dusts, and the presence of high titers of precipitating antibody to the offending agents.

Complete avoidance of contact with pigeons is recommended for persons with pigeon breeders' disease. Although a protective mask may prevent acute attacks, there is not sufficient evidence to determine whether limited avoidance is adequate to protect the breeder against the development of permanent lung damage.

Delayed Fatal Exsanguination From Aortoduodenal Fistula

B. S. Bhagavan and T. Weinberg (Sinai Hosp of Baltimore, Inc, Baltimore)

Gastroenterology 55:113-117 (July) 1968

In two patients, an atherosclerotic aneurysm ruptured into the duodenum with fatal exsanguination. The mechanisms of rupture in relation to the degree of atherosclerosis, thrombus formation, size of the aneurysm, and infection and inflammation are discussed. Contrary to the general impression that rupture into the gastrointestinal tract is sudden and immediately fatal, there is a latent period from the initial onset of hemorrhage to final demise. Recognition of this latent period would lead to a positive surgical approach and result in greater salvage.

Electrophoretic Study on Denaturation of Human Transferrin by Urea

C. Bron, B. Blanc and H. Isliker (Institut de Biochimie, Univ of Lausanne, Lausanne, Switzerland)

Biochim Biophys Acta 154:61-69 (Jan 22) 1968

The aggregation of human transferrin produced by 8-M urea at pH 8.7 was demonstrated by electrophoresis in polyacrylamide-afarose gels. Molecules of iron-saturated ferri-protein were protected against denaturation and did not seem to aggregate under these conditions. The presence of sodium dodecyl sulfate in the gel medium, or dilution of the solutions of transferrin, caused the disappearance of all traces of aggregates. Also, a pH below the isoelectric point of the protein, or the addition to the gel of iodoacetamide, eliminated any difference in mobility between unsaturated proteins and those saturated with iron, suggesting an active role for the sulfhydryl groups in the process of aggregation.

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October 1968

17. DR. FRANK M. LOCKWOOD, "Medical Careers", Paramedical Club of Northside High School, Fort Smith

30. DR. A. S. KOENIG, Paramedical Club of Northside High School, Fort Smith

November 1968

14. DR. MAE B. NETTLESHIP, "Careers in Medicine" and "Medical Education", Gravette High School Careers Day

20. DR. JOHN SATTERFIELD, "Why Executives Drop Dead", Pine Bluff Kiwanis Club

December 1968

4. DR. MORTON WILSON, "Renal Transplantation", Paramedical Club of Northside High School, Fort Smith

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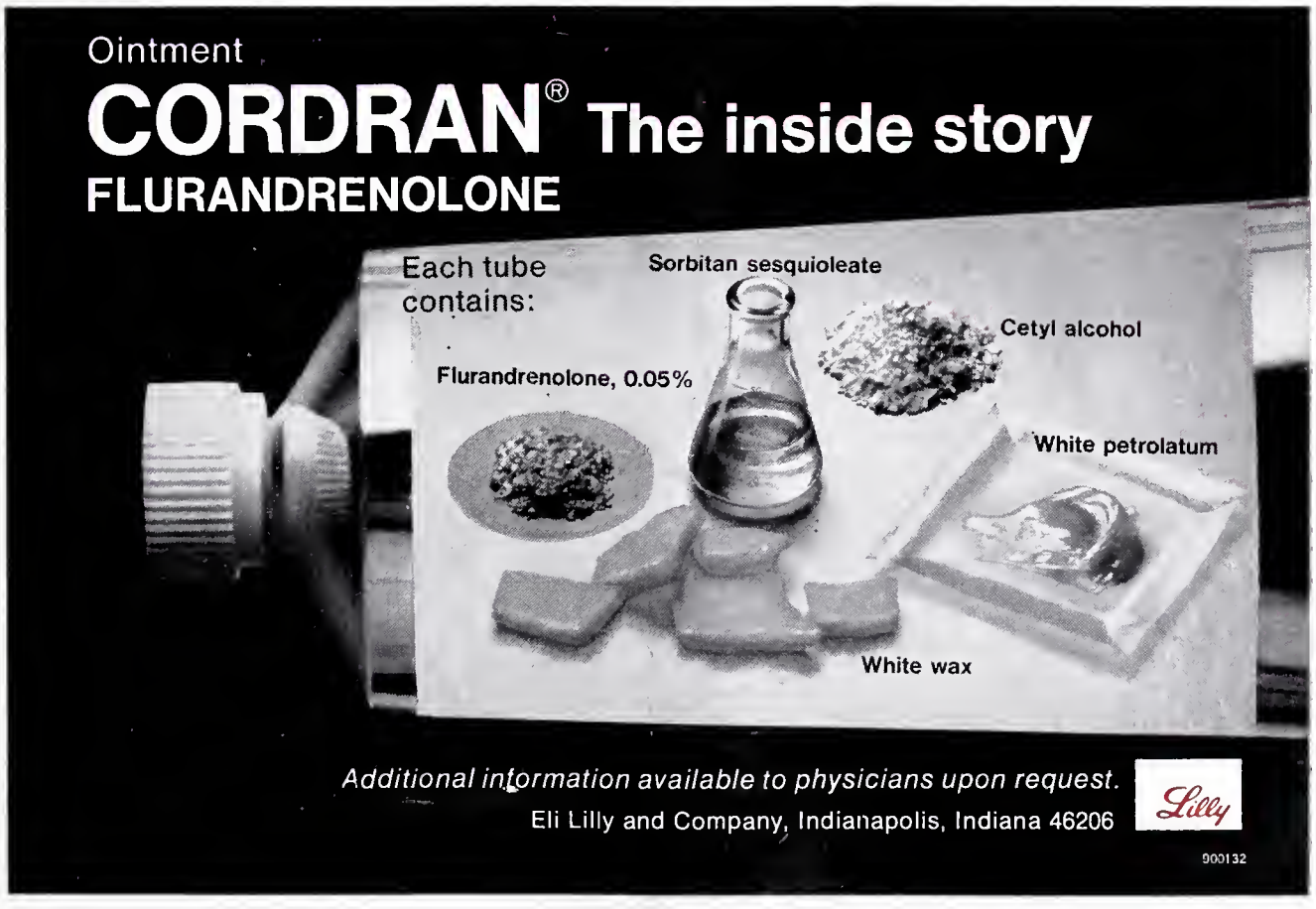
FORT SMITH, ARKANSAS



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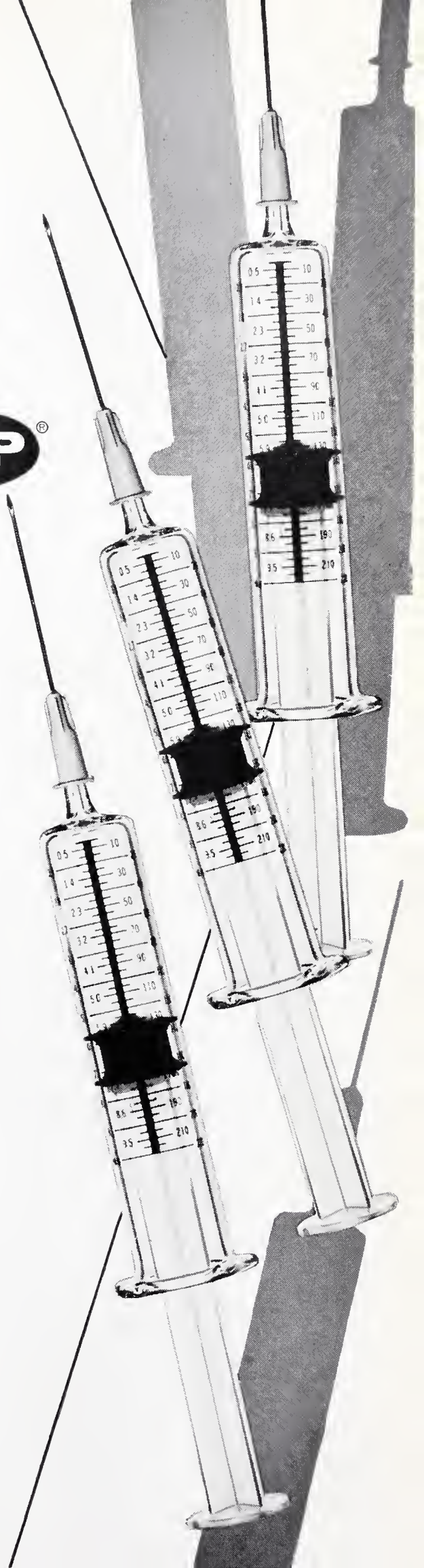

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Surgical Lesions of the Adrenal Gland

Jasper L. McPhail, M.D.*

The variety of clinical pictures which is produced by certain lesions of the adrenal cortex has fascinated both doctors and laymen from the days of antiquity. Pliny, the Great, who lived from 23-79 A.D., is reported to have described the unusual growth and maturity of a male child at the age of three.[1] The first case recorded with autopsy findings was in 1803 by Tilesius;[2] his patient was a four-year old girl with precocious development sexually. The autopsy revealed a tumor of the left adrenal gland with metastases to the liver.

These and other cases focused attention on the now familiar clinical pictures of endocrine dysfuntion: Cushing's syndrome, the adrenogential syndrome in children and adult women and the feminizing syndrome in the male. More recently the interesting picture of aldosteronism has been shown to be a definite form of hyperadrenalcorticalism.[3] Its manifestations are physiologic rather than physical.

As the result of biochemical and physiological research within the past 25 years, it has been possible to bring some order out of the confusion of earlier days. The chemical nature of the hormone which is overproduced by the adrenal cortex determines the clinical picture, and the layer of the adrenal cortex which is diseased determines the hormone which is overproduced.

Of course, there can be clinical pictures of a mixed nature due to overproduction of more than one hormone, but as a general rule, the following classification can be made: excess secretion of aldosterone from the glomerulosa layer of the cortex produces fluid and electrolyte disturbances known as Conn's syndrome or aldosteronism; excess of the hydrocortisone-like steroids from the fasciculata layer produces Cushing's syndrome; excess androgens from the reticularis layer produces the adrenogential syndrome in children and masculinizing syndrome in adult females; whereas excess estrogen from the same layer in adult males produces the feminizing syndrome.[4]

These varying clinical pictures may be produced by benign or malignant adrenal cortical tumors, hyperplasia of the cortical tissue or hyperfunction of a normal sized cortex. Feminization in the adult male is almost always produced by a tumor, and these tumors should always be considered malignant. Functioning tumors which produce Cushing's syndrome are usually malignant. Tumors which produce aldosteronism are usually benign. Non-functioning tumors, since they produce no change of physiological or physical nature, are usually diagnosed only at autopsy. Occasionally, one will become large enough to produce pressure symptoms or a palpable mass.

With these introductory remarks, each of the syndromes will be considered separately for a brief review of pathophysiology, diagnosis and management.

ALDOSTERNONISM

The discovery of "electrocortin", later renamed "aldosterone", occurred in 1952,[5] and in 1955 Conn reported the first case of aldosteronism due to an adrenal tumor.[3] Many previous studies led to these findings. For several years, it had been known that after compounds E and F were removed from adrenal extract there remained in the amorphous fraction a substance which would maintain the life of adrenalectomized animals. It was also noted that this amorphous fraction exerted marked influence on water and mineral metabolism. Houssay had noted that the zona glomerulosa did not atrophy following hypophysectomy, suggesting that it is not completely under the influence of ACTH.[6] Greep and others[7] had shown that variation of the electrolyte content of the diet could affect the zona glomerulosa. After Simpson[8] and other identified aldosterone, much more accurate studies were made

*Department of Surgery, University of Arkansas School of Medicine, Little Rock, Arkansas.

possible. Blood and urine can now be studied for aldosterone content.[9]

Giroud[10] proved that aldosterone came from the zona glomerulosa by micro techniques of extracting the substance from this layer of human and animal adrenals. The production of aldosterone can be stimulated by a low sodium intake. A low sodium diet will not increase the urinary output of 17-OHCS. This shows that aldosterone production may not be directly regulated by the pituitary. Later patients who had hypophysectomy were shown to excrete excess aldosterone when put on a low sodium diet. This proved the partial independence of aldosterone secretion; however, it is still known that ACTH will cause an increase in urinary aldosterone. But, a low circulating blood volume, occlusion of the carotid artery below the carotid sinus and extracts from the diencephalon, particularly from the posterior commissure-pineal region will do the same.[11] Potassium has a primary stimulating effect on the excretion of aldosterone, as can be shown by the intravenous infusion of the potassium ion.

The clinical picture of excess aldosterone had been recognized previously, but Conn in 1955 first elucidated it as hypertension, hypokalemia and metabolic alkalosis with symptoms of hypertension, muscular weakness and carpal and pedal spasms. Trousseau and Chvostek signs are usually present. Polyuria and polydipsia are also present, and the polyuria does not respond to pitressin. The usual case does not have edema even though there are cases where excess aldosterone causes edema. A dramatic clinical sign which the alert clinician will notice is that the patient has carpal spasm when the blood pressure cuff is inflated.

The most frequent pathologic finding is a benign cortical adenoma, but some cases, particularly in children, are produced by hyperplasia or hyperfunction. If the clinical picture occurs under the age of 20, it is most likely due to hyperplasia; and in those over 30 years of age, it is most likely due to a tumor which is usually benign. The least common cause is adrenal carcinoma which is highly malignant with a propensity to rapid growth and metastasis.

The diagnosis of aldosteronism initially depends on the recognition of the significant combination of hypertension, hypokalemia and metabolic alkalosis. Hypertension is extremely common, and in treating these patients with chlorothiazide diuretics, potassium depletion can occur. The diagnosis should be made before the patient is started on diuretics or else after the drugs have been withheld for several days. Occasionally, a true potassium-loosing nephritis can give a similar picture to aldosteronism. These loopholes to an accurate diagnosis only emphasize the importance of determining the urinary aldosterone. The normal urinary excretion of aldosterone is 1-10 ugm %/24 hours.[9] On a normal diet, rarely a patient with aldosteronism will have as little as 8 ugm% excretion. In such a case, if the patient is given a low sodium, high potassium diet, the aldosterone in the urine will be markedly increased to at least 30 ugm%; whereas, this test usually only elevates the normal patient's urinary aldosterone about two to three times and almost never above 20 ugm%.

Recently Biglieri and his co-workers presented a series of 28 patients in whom the Desoxycorticosterone Acetate test was employed in diagnosing aldosterone-producing adenomas. The patients were maintained on 120 mEq. sodium intake daily for four to six days. The 24-hour excretion of urinary aldosterone was measured. Then desoxycorticosterone acetate 10 mg. every 12 hours was given intramuscularly for 3 days. The 24-hour urinary excretion of aldosterone was measured on the third day of DOCA therapy. Failure to reduce urinary aldosterone excretion into the normal ranges or to depress normal levels was interpreted as significant evidence of an aldosterone-producing tumor. Twenty-seven of these patients had surgical explorations and adenomas were present in 24 of the patients.[12]

Management of aldosteronism is usually surgical, since it is most frequently due to a tumor. Only rarely can a tumor be demonstrated radiographically preoperatively, because the majority of the aldosterone-producing tumors are less than 3 cm. in diameter. If a tumor is demonstrated preoperatively, then a lumbar incision is preferred. Due to the inability to lateralize these tumors,[13] the most commonly used incision is the transabdominal horizontal incision. The thoracoabdominal incision is not necessary because of the small size of these tumors. If a tumor is not radiologically demonstrable, surgical exploration is not justified unless actual elevation of urinary aldosterone excretion is demonstrated by accurate methods.

In these patients there are some special considerations of which the surgeon must be aware.

Profound potassium depletion at the time of surgery is an extreme hazard. Even though potassium, when given, wil cause an increase in aldosterone production, it is noted that clinically the symptoms of potassium depletion and metabolic alkalosis are relieved by the preoperative administration of 300 mEq. of potassium daily for at least three days, followed by administration of potassium during the "stress period" postoperatively.

Because of the synergistic effects of low potassium and the curare-like compounds, it is important that muscle relaxants are not used during surgery. It is not clear that hydrocortisone is of benefit pre-, intra-, and postoperatively in these patients, but most surgeons continue to use these measures. Post-operatively, it may be wise to administer a potent synthetic mineralo-corticoid such as 9-alpha-fluoro-hydrocortisone.

An aldosterone-producing tumor does not produce contralateral adrenal atrophy which is seen in Cushing's syndrome. It is usually necessary to expose both adrenal glands and examine them carefully before deciding upon the procedure of choice. Of course, the decision is easy if the tumor is discrete and over 1 cm. in size. A good many of these tumors are less than 1 cm. in size. From 20 to 40 percent of all adrenal glands show some nodularity; therefore, a decision is at times difficult. Some surgeons have advised excision of the multiple nodules; others have advised a subtotal adrenalectomy in cases with multiple nodules.

Because of insufficient numbers of cases, it is not decided which is the best procedure for cases which are due to cortical hyperplasia. As previously noted, the majority of cases due to hyperplasia are in children. For this reason, one hesitates to do a total adrenalectomy, which would necessitate life-long replacement therapy. Some surgeons recommend unilateral adrenalectomy, but most of them recommend bilateral subtotal resection, which usually results in cure without the need for replacement therapy.

CUSHING'S SYNDROME

In 1912, Cushing described what was probably the first case of the disease which bears his name. By 1932, when he published his paper on the disease, he had collected 12 cases.[14] Today, it is one of the commonest endocrine diseases.[15]

All causes of Cushing's syndrome are not fully understood physiologically. It is known that epinephrine will cause a temporary rise in adrenal corticoids by stimulating the pituitary to produce ACTH. Prolonged administration of ACTH will produce Cushing's syndrome, and the adrenal cortices will become hyperplastic. But patients with Cushing's syndrome do not have an elevated blood level of ACTH. This suggests that the adrenal cortex must be oversensitive to a normal blood level of ACTH. There are several unanswered questions as to whether Cushing's syndrome is produced by overstimulation by the pituitary or by abnormal response of the adrenal cortex. No one has really answered the question as to which comes first, the basophilic changes in the pituitary or the hypercorticalism.[16] Could the hypercorticalism be the cause of the basophilic changes in the pituitary? Or, is the reverse true?

As a general rule, Cushing's disease due to adrenal hyperplasia or hyperfunction is still under the control of the pituitary to a remarkable extent. On the other hand, Cushing's syndrome due to an adrenal tumor is almost always autonomous in its hormonal function.

The signs and symptoms of Cushing's syndrome when it is full-blown are easily recognized, but diagnostic acumen is needed to recognize the insidious early symptoms. Over 50% of the cases present with the following complaints: weakness 83%, menstrual disturbances 81%, moon facies 80%, hirsutism 80%, plethora 73%, hypertension 65%, truncal obesity 65%, acne 63%, psychiatric disturbances 55%, easy bruising 50%. Other complaints are impotence, loss of muscle mass from extremities, pathologic fractures, glycosuria, increased irritability, arteriosclerosis beyond that expected for their age, bone pain, headache, edema, paresthesias, voice change, blurred vision, poor wound healing and leg ulcers, coarse hair, anorexia and nausea, moving mass in the abdomen, hematuria and pyuria due to ureteral stones and frequent skin infections.

The metabolic changes which collectively result in the various manifestations of Cushing's syndrome are caused by an excessive secretion of glucocorticoids, of which hydrocortisone is the most prominent. There may be mixed findings if an excessive secretion of androgens also prevails.[15]

The disease is much more common in women than in men, and it is most often seen in the age range of 30-45; however, cases have occurred in children as young as six weeks of age. If untreated, the average life expectancy is five years.[17] In a detailed study of autopsy material from 114

cases, the most common finding was bilateral adrenal hyperplasia. Adrenal carcinoma occurred in 15 per cent of cases and discrete adenomas in 8 per cent. Twenty-seven per cent of the cases had real or questionable basophilic tumors of the pituitary glands.[18] If untreated, the most common cause of death is infection, but prominent causes of death are degenerative cardiovascular-renal complications and metastatic disease.[17]

The single, most useful laboratory test is the 24-hour urinary excretion of hydroxycorticosteroids. The normal valve is 3 to 12 mg/24 hours.[19] There are several laboratory studies designated to differentiate between hyperplasia and tumor. In the ACTH stimulation test, an eight-hour infusion of 50 units ACTH in 1000cc of 5% glucose in water is given, and the 24-hour 17-OHCS excretion in the urine is measured. Normal patients respond to this test with 20 to 40 mg/24 hours. Patients with adrenal hyperplasia usually excrete 50 to 80 mg/24 hours. Tumors are almost always resistant to stimulation.[19]

The ACTH suppression test consists of giving Dexamethasone 0.5mg. every six hours for 48 hours. The 24-hour urinary 17-OHCS excretion is measured. In case of adrenal hyperplasia, it is markedly reduced, but an adrenal tumor usually will not respond.[20] There is also a rapid suppression test which consists of giving 1 mg. of Dexamethasone orally at midnight. The following morning from 7 to 12:00 o'clock, the urine is collected on ice, and the 17-OHCS and creatinine content are measured. The urinary steroid-creatinine ratio is multiplied by 1000. A value of more than four suggests Cushing's syndrome due to hyperplasia. This seems to be a good screening test and can be used in post-operative follow-up.[21]

If these tests were always accurate in differentiating tumor from hyperplasia, it would be nice, but occasionally there is a case of adrenal tumor which will respond to these tests. For this reason, most experienced clinicians recommend exploration of the adrenals in all cases of Cushing's syndrome. Functioning adenomas tend to produce one particular type hormone, whereas functioning carcinomas tend to produce a mixture of hormones.[22,23]

Other important laboratory findings are: abnormal diabetic glucose tolerance test in 83%, eosinopenia in 70%, increased insulin resistance in 64%, elevated urinary 17-Ketosteroids in 63%; leucocytosis in 58%, osteoporosis in 44%, lymphopenia in 43%, alkalosis in 38% and polycythemia in 30%. X-Ray studies should include general bone survey, intravenous pyelograms, films of the sella tursica and retroperitoneal air or carbon dioxide studies.[13]

The treatment of Cushing's syndrome is pituitary irradiation if there is any evidence of sella tursica involvement and if there is no evidence of an adrenal tumor.[18] Some centers recommend pituitary irradiation as the treatment of choice even without evidence of pituitary disease if there is not laboratory or x-ray evidence of adrenal cortical tumors. But in most centers, surgeons or internists recommend either bilateral total adrenalectomy or else adrenalectomy on one side and 85% adrenalectomy on the other side for cortical hyperplasia and hyperfunction. Of course, all tumors should be removed surgically, and 65% of tumors in Cushing's syndrome are malignant.

If a tumor is localized preoperatively, the operation is best done through a thoraco-abdominal incision for wide exposure to prevent rupturing the false capsule of a malignant lesion. Often these tumors are large, but the smaller ones can be easily removed through a lumbar incision. In all cases where a tumor is not lateralized preoperatively, the transabdominal route of exploration is preferred rather than making two lumbar incisions.[19]

Prolonged administration of cortisone-like compounds preoperatively is probably unnecessary, but it is customary to give the patient 100 mg. of cortisone I.M. two hours prior to surgery and administer 100 mg. of hydrocortisone intravenously during the operation. About 4 to 8 hours after surgery, another 100 mg. of cortisone and 3 mg. of DOCA is given intramuscularly. In cases of total adrenalectomy, after four to five days, the cortisone is gradually decreased until a maintenance dose of 25-50 mg. daily is reached. The DOCA is decreased until a maintenance dose of 1.5 mg. daily is reached. This may later be changed to 0.125 mg. of 9-alpha-fluorohydrocortisone orally daily.

In cases of subtotal adrenalectomy, the patients are usually given 100 mg. of hydrocortisone intravenously every eight hours for the first 48 hours. Then ACTH, 40 units intramuscularly daily is given to stimulate the remaining and usually atrophic adrenal cortex. Only rarely is DOCA re-

quired postoperatively in subtotal adrenalectomies. Care must be taken in the management of these patients, so that the pathologic fractures due to osteoporosis do not complicate the postoperative period. Postoperative wound infections can often be avoided by clearing up all infected acne areas preoperatively and by judicious use of antibiotics postoperatively. Poor wound healing should be expected and retention sutures used in all cases. It is wise to leave the skin sutures in for 10-12 days.[19]

Careful postoperative followup is necessary in all cases except those due to benign tumors. Within four to six weeks after surgery, one should expect to see regression of the physical manifestations of the disease. Blood pressure often returns to normal unless there was prolonged hypertension preoperatively or unless the kidneys are permanently damaged due to renal calculi. Boney demineralization usually takes six months to become corrected. The 24-hour urinary excretion of steroids should be measured six weeks postoperatively, and then at three to six month intervals. Tumor recurrences and hyperplasia recurrences may be reflected by steroid output long before clinical signs and symptoms reappear. After the stage for acute postoperative adrenal insufficiency has passed, one must watch for chronic adrenal insufficiency which may begin as drowsiness, inability to concentrate or remember things, decrease in serum sodium and elevation of blood urea. This most commonly occurs in patients who had adrenal tumors with contralateral adrenal atrophy at the time of surgery. Often up to one year is required to restore the atrophic gland to normal function. During this time the doctor tries to use ACTH and cortisone replacement sparingly so that the patient's own ACTH and cortisone production will not be further suppressed.

At this time, there is great promise for medical management of Cushing's syndrome due to adrenal hyperplasia and hyperfunction. Aminogluthimide, marketed by CIBA as "Elipten" was first used as an anticonvulsant. Patients who were on long-term therapy with this drug developed Addison's disease.[24] Investigation revealed that aminogluthimide inhibits desmolase, the enzyne which splits the cholesterol side chain in the first step of steroid synthesis. There was already research being done to find such a drug when it was discovered that aminogluthimide had this action.

Several patients have now been treated by Dr. Ralph Cash and his co-workers with one gram aminogluthimide daily for twenty weeks. The patients have all had remission of hypercorticalism without any side effects. None have yet developed Addison's disease with this short-term therapy. The drug also shows promise as a medical adrenalectomy in cases of advanced carcinoma of the breast and metastatic functioning adrenal carcinoma.[24]

THE ADRENOGENITAL SYNDROME

The adrenogenital syndrome is due to the oversecretion of androgens by the reticularis layer of the adrenal cortex, either by hyperplasia, hyperfunction or tumors. The majority of these cases are due to hyperplasia, but if a tumor is the cause, it is likely malignant.[25] The most striking clinical pictures are precocious puberty in young boys and pseudohermaphrodism in young girls. Adult women exhibit virilism and enlargement of the clitoris. Virilism in the adult male would be hard to recognize. The young males have enlargement of the penis, secondary sexual depelopment, muscular adult-type bodies, but normal infantile testicles. The female child will present with pseudohermaphroditic clitoral enlargement, a male hair escutcheon and masculine muscular development. The adult women have marked enlargement of the clitoris, male hair development, sometimes a beard, decrease in breast size, amenorrhea or irregularity, acne, husky voice and masculine muscle development.

The same x-ray studies are indicated which are used in other cases of suspected adrenal tumors. The laboratory studies then are concentrated toward trying to prove the increased output of androgenic substances. The suppressive tests are remarkably efficient in differentiating the cases due to hyperplasia from those due to tumors.[26] The single, most important test is the 24-hour urinary excretion of 17-ketosteroids. Brooks and Prunty have also shown that fractionation of the 17-ketosteroids into the fraction which is due to metabolism of hydrocortisone and the fraction which is due to metabolism of androgens has been of much importance in the diagnosis of these cases.[23]

If a tumor is not demonstrated radiographically or indicated by abnormal response to the suppression test, then the case should be managed medically with cortisone and if necessary DOCA. Cortisone will suppress ACTH liberation by the pituitary, and thereby decrease the adrenal out-

put of androgenic substance by the hyperfunctioning or hyperplastic reticular layer of the cortex.[26]

Occasionally, medical suppressive therapy with cortisone-like hormones is unsatisfactory, and the surgeon is called upon. The decision is a hard one to make because, unlike the Cushing's syndrome, where the patient is metabolically ill and has only a five-year life expectancy, the patient with adrenogenital syndrome is physically muscular, robust and has a normal life expectancy. These patients are merely physiologically and psychologically frustrated.

The surgeon then hesitates to do a total adrenalectomy and leave the patient permanently destined to replacement therapy. For this reason, most surgeons do a subtotal adrenalectomy for cases of hyperplasia and hyperfunction which are resistant to medical therapy. Of course, the treatment for the adrenogenital syndrome caused by tumor is always surgical. Since over two-thirds of these tumors are malignant, a total adrenalectomy on the side of the tumor is done. Unlike in Cushing's syndrome, if there is a tumor the contralateral adrenal will not be atrophic in 70% of the cases.

The preoperative preparation of these cases is the same as that for any other major abdominal surgery, unless surgery is being done in a patient who has had cortisone suppressive therapy. In such a case, I recommend 100 mg. cortisone intramuscularly the night before surgery and again two hours before surgery. During surgery, 100 mg. hydrocortisone is given intravenously. Postoperatively, 100 mg. hydrocortisone is given intravenously every eight hours for 48 hours. Then the drug is given orally, cutting the dosage in half every two days until it can be completely discontinued. If there is any difficulty in discontinuing the drug, ACTH therapy is given in hopes of stimulating the suppressed adrenal. Rarely in cases due to hyperplasia, there is enough encroachment upon the other layers of the adrenal cortex that there will be deficient mineralocorticoids and glucocorticoids to maintain proper water, electrolyte, carbohydrate and nitrogen metabolism. In such cases the patients should be prepared with replacement therapy for about two weeks before undertaking surgery.[19]

In the straight forward tumor cases, it has been customary to give 100 mg. of hydrocortisone during surgery and to continue it for about three days postoperatively. There is usually no hazard in discontinuing therapy in these patients, even the ones with subtotal adrenalectomy. It is likely that the patients would do as well without supplementary hydrocortisone.

FEMINIZING ADRENOCORTICAL TUMORS

Feminization in the adult male is uncommon. Higgins and his co-workers collected 28 cases from the literature in 1956.[27] In all cases where histological study was done, tumors were the cause of the syndrome, and 20 of the 26 tumors were malignant. In the other six cases, even though the tumors were reported as histologically benign, it was pointed out that these reports should be verified by the subsequent clinical course of the patient. In 1957 and 1960, Wallach[28] and Slaunwhite[29] reported additional cases. By 1962, there had been fifty cases reported.[30]

The presenting signs and symptoms are usually enlargement of the breasts, feminization of the body contours, feminization of the voice, decrease in size of the testicles and impotence.

Even though the normal male has some estrogenic secretion by the adrenal glands and estrogenic substances in the urine, these patients show a marked increase in the 24/hr. urinary estrogens. There are no other characteristic laboratory findings.

Since all of these cases are due to tumors and since all of these tumors should be treated as malignant, total unilateral adrenalectomy is the procedure of choice.

PHEOCHROMOCYTOMA AND PARAGANGLIOMA

Pheochromocytomas are tumors of chromaffin origin which may occur in the adrenal medulla, along the sympathetic chain in paraganglia and in the organs of Zuckerkandl or in any area of the body where sympathetic ganglia or chromaffin tissue are found.[31,32] They may be functioning or non-functioning, but probably over 90% are functioning. They may be benign or malignant, but only 3% are malignant.[30] Graham's series showed 10% were malignant. The diagnosis of malignancy cannot be made histologically, but it must be made on grounds of clinical metastases or invasiveness. These tumors occur in the neck, thorax, retroperitoneal areas, urinary bladder and intractranially.[31,32] In order to dispel some of the confusion, it has been suggested that the term "pheochromocytoma" be given to those tumors which arise from the adrenal medulla and that

the term "paraganglioma" be given to the ones which arise in extra-adrenal sites. The adrenal medulla is capable of producing epinephrine from nor-epinephrine by a process of methylation, but this mechanism is almost completely absent in the sympathetic ganglia and the post-ganglionic nerves. This explains the reason for the laboratory findings which will be mentioned later.

At the Mayo Clinic, in 16,000 autopsies, the incidence was about 1:1000.[30] At this rate, there should be 600 to 800 new cases per year in the United States alone, but in 1957 there had only been 650 cases reported in the world literature. There must have been a larger number which were unreported or undiagnosed.

The symptoms of pheochromocytoma are many. The hypertension is paroxysmal in about 25-35% of cases, sustained in about 50% of cases and absent in about 20% of cases. Severe headache is the most common symptom, but palpitations, nausea and vomiting, epigastric or substernal pain, profuse sweating, dyspnea, vertigo, pallor, apprehension or fear of impending death and visual disturbances occur.[33]

The signs are tachycardia, marked rise in blood pressure during an attack, blanching or flushing of the face, dilation of the pupils, precordial pain, convulsions, tingling of the extremities, prostration and other things such as bluish discoloration of the fingertips. The patients may develop frank heart failure, myocardial infarction, shock or cerebrovascular accident.

The attacks can last for only a few moments or for several hours; they may be frequent or as far apart as a year or two. Attacks are frequently precipitated by emotional upsets, changes in posture, sexual intercourse, physical exertion, trauma, sneezing, eating, urination or palpation of the abdomen. During the attack, there may be a rise in the blood sugar, body temperature, and blood and urinary catechol amines. There may be circumoral pallor, sweating and even mottled, red and cyanotic extremities. Constipation, weight loss, tremor and hot flushes may be present. Gastrointestinal hemorrhage and even infarction of the ileum have been reported with pheochromocytomas.

Forty-eight percent of the tumors are located in the right adrenal gland and 33% in the left. They occur bilaterally in 9% and in extraodrenal sites in 10% of cases. Of the latter group they may occur in multiple locations in 4% and mediastinally in 1%. In the cases of familial pheochromocytoma, they are bilateral in 50% of the cases.[34,35]

The tumors vary in size from tiny modules to 3600 grams, with an average of 100 grams, but only 14% of them are palpable preoperatively. Pheochromocytoma is a serious disease. In one series of 21 cases, 50% died before being diagnosed. Four patients died within 24 hours of being admitted to the hospital: one of circulatory collapse, two of cerebrovascular accidents and one following appendectomy. Two patients died of metastases, one patient of myocardial infarction and three due to unrelated causes. Of the eleven patients operated, ten are living and well; one died of technical error at time of surgery.

The laboratory findings are: the basal metabolic rate is elevated in about 50 to 60 percent of cases; the cholesterol, protein bound iodine and radioactive iodine uptake are usually normal; the fasting blood sugar is elevated in about 40%, but it will be elevated in 70% during an attack. Three-fourths of the patients with frank diabetes were relieved after resection.

The standard tests today are: 1/ the Regitine Test: 5 mg is given IV after several recordings of control blood pressure. The blood pressure is then checked every thirty seconds for three minutes and every minute for another 10 minutes. A fall of 35/25 is considered a positive test. This test is used in patients with sustained hypertension of at least 180 mm Hg. systolic. 2/ the Histamine Test: Control blood pressures are recorded. Histamine base: .025 mg is given IV. The blood pressure is recorded every minute for 15 minutes. A rise of 50/25 in blood pressure is considered a positive test. The test is used in cases with paroxysmal hypertension or without hypertension. It should never be used unless Regitine is available to control excessive hypertension caused by the test. Both of these tests have false positive and false negative results. The most accurate and important diagnostic aid is that of measuring the cathechol amines in blood and urine.[36,37] This is a difficult laboratory procedure, and the peripheral blood values for catechol amines are so minute even in many cases of pheochromocytoma that isolated specimens may be of no avail. In this case, the histamine test is performed, and blood samples are drawn at 2 and 4 minute intervals after injection. Also urine is

collected for 2 hours after histamine injection for catechol amine studies.

The most accurate and stable laboratory study is that of the catechol amines in a 24-hour urine sample. In normal patients, this is almost always below 80 ugms in 24 hours. In patients with pheochromocytomas, the value is usually between 110 and 3400 ugms/24 hours.[35,36,38] There is no verified case of persistent hypertension due to pheochromocytoma which did not have elevated 24-hour urine catechol amines. Only very rarely will a case with paroxymal hypertension give a normal value. In such cases, the histamine stimulation test with collection of a two-hour urine sample was used to confirm the diagnosis. Currently other screening tests for pheochromocytoma are the measurement of urinary vanillylmandelic acid (VMA)[30] and tyramine and glucagon stimulation tests.

Other tests are done in an effort to lateralize the tumor before operation even though this is not important, since all of these cases are done transabdominally. The tumor is palpable in only 14% of the cases. The intravenous pyelogram and presacral air injection will lateralize the tumor in over 50% of cases. Aortography should never be used in these cases because the dye may precipitate a fatal attack. Chest x-ray should always be taken if an extraadrenal tumor is suspected, and since these tumors in the thorax lie in the paraveterbral gutter, a lateral film should be taken.

The tumors which arise in the adrenal glands produce both epinephrine and nor-epinephrine, but the extraadrenal tumors produce mainly nor-epinephrine.[36] In cases where the epinephrine values are normal in the blood and urine but the non-epinephrine level is elevated, an extraadrenal tumor should be suspected. In case of an extra-adrenal tumor, one would like to locate it preoperatively. This can be done by placing a catheter in the vena cava and taking venous samples at different levels for examination for catechol amines. The sample with the highest value will be at the point of venous drainage of the pheochromocytoma into the vena cava.[36,38]

If pheochromocytoma is associated with pregnancy, 25% will have severe toxemia. In 38 reported cases, the maternal mortality rate was 50%, and the fetal mortality rate was 32%. Some of the patients die antenatal deaths due to cerebrovascular accidents, circulatory collapse, congestive heart failure or toxemia. The majority either die at time of delivery or due to circulatory collapse following delivery. If pheochromocytoma is diagnosed during pregnancy, it should be operated then, because the operative mortality is only about 10% for the mother and 30% for the fetus; whereas, if the pheochromocytoma is not operated, the death rate is 50% for the mother and 32% for the child.[38]

There are at least 37 reported cases of pheochromocytoma associated with neurofibromatosis, an incidence of about 4%. It has been suggested that it is also associated with other neuro-cutaneous disorders such as Sturge-Webber, tuberous sclerosis, von Hipple-Lindau's disease, megacolon, megaloureters, etc.[39,40] There is also a familial type of pheochromocytoma associated with medullary carcinoma of the thyroid.[41]

The reported cases range in age from 3 months to 81 years. There have been 85 cases in the literature below the age of 16 years. This is important because in children, 24% of the tumors are bilateral. Fifteen percent have another tumor elsewhere and another 15% have only extraadrenal tumors. This gives a 54% chance of the tumor being either bilateral, multiple or extraadrenal, implying that the abdominal approach is mandatory.[42] Only 8% of the children had paroxysmal hypertension, while 92% had sustained hypertension. The operative mortality in children for this disease has reduced markedly since 1954. It is now 11-12%. The most common cause of death postoperatively in a child is unrecognized pheochromocytoma in another site.[42]

The preoperative preparation other than the diagnostic studies has not been definitely decided. Some feel that from 5 to 75 mg of Regitine every two hours for a day or two preoperatively gives the patient an easier operative period. Others feel that the hypertension and other nervous manifestations can be controlled with chlorpromazine, preoperatively, but the increased hazard of this drug in a patient due to be anesthetized outweighs its advantages. Since a sustained high level of epinerphrine promotes depletion of stored carbohydrate, others have advocated preoperative preparation with high carbohydrate diet or IV fluids. It is not proved that any of these measures help.

The choice anesthetic management is to induce anesthesia with a light dose of pentothal, and then rely on intermittent doses of pentothal,

muscle relaxants and a high flow rate of oxygen. One should definitely guard against hypercarbia since this sensitized the myocardium to fibrillation. Theoretically, one should not use cyclopropane or fluothane as anesthetic agents for the same reason. A spinal anesthetic is contraindicated because of its tendency to produce a hypertensive crisis in these patients. Shortly after induction of anesthesia, 5 mg of Regitine IV is given to bring the blood pressure down to normal levels. Then this can be repeated intermittently as often as necessary during the operation.

Before manipulating the tumor, if possible, the surgeon should try to ligate the venous drainage of the tumor. This often causes a precipitous drop in blood pressure. Usually after excision of the tumor, there is a drop in blood pressure even to shock levels. The cause of this is unknown, but is should be managed with a nor-epinephrine infusion titrated to keep the blood pressure above 90 mm Hg. systolic only after circulating blood volume and central venous pressure are in the nomal range.

If the tumor is bilateral in the adrenals, then hydrocortisone is given during the surgery and in the first few postoperative days. In all cases, the adrenals should be exposed bilaterally and even the paraaortic tissue examined for the presence of other tumors. It is wise to routinely prepare and drape the left chest in these cases in the event that a left thoracotomy were necessitated by cardiac arrest during the procedure.

Dr. Englemann at the National Institute of Health has been working[43] with alphamethylparatyrosine which inhibits catecholamine synthesis by blocking the action of tyrosine hydroxylase. He recommends giving patients with pheochromocytoma 500 mg. of Alpha-MPT four times daily for two weeks, preoperatively. The patients who have received this regimen of preoperative control have had a smooth, safe operative and postoperative period. The only side effects have been persistent sedation, anxiousness, diarrhea and crystaluria. The drug has reduced the production of catechol amines by as much as 80 percent.

The success of this short-term management program has led Dr. Englemann to do a controlled study of long-term use of Alpha-MPT as definitive medical treatment for Pheochromocytoma. The data from this study are not ready for release at this time.

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Prospective Study of Mortality of Several Occupational Groups

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The study was primarily concerned with the risk of lung cancer in certain occupations. One occupation, asbestos workers, was found to have a definite increased risk of lung cancer, and the risk increased with length of time in the occupation. No other occupation was found to have increased lung cancer hazard. Other causes of mortality were not found related to these occupations except for two groups that had excess mortality from both cancers of the mouth, pharynx, and larynx and from cirrhosis of the liver. These diseases are associated with alcohol composition, hydrodynamic properties (flotation and sedimentation coefficients, intrinsic viscosity), and optical properties (circular dichroism) as untreated LDL_2. However, in contrast to LDL_2, the succinylated product (s-LDL_2) failed to react with rabbit anti-LDL_2 antisera.

Area-Wide Planning As Viewed by the Private Physician

F. M. Henderson, M.D.*

The private practitioner of medicine finds himself in a peculiar position under the stress of a present day influence which requests delivery of medical care in ever greater quantity while emphasizing improved quality. He suddenly finds that he is being prodded by a lay society to develop programs which he has been futilely attempting to sell for years to unwilling consumers of health services. In this country, there is such a discrepancy between the spoken interests of our society toward the desire for health and the actual effectiveness in the use of the delivered service. The application of knowledgeable experience for benefit of the patient has always been a major part of the effort of the active practitioner who has neglected family and frequently an active practice to fight a literally unconcerned public for the opportunity and, if you please, privilege to afford that community a health practice which is now being defined as a right. In order to avoid appearing obtruse and vague let's become specific by example:

Take the practice of immunizations. We generate sufficient concern to legislate their necessity for all children entering school, yet how many adults have up-dated and current shot records? Those who have belong to about 20% of the adult populace. However, physicians on a local and medical society level are continually emphasizing this as an important health benefit. Moreover, such innoculations are available free of charge at every Public Health Center.

A recent occurrence in our community is a classic example of the problem which has been recounted time and again over the whole country; fluoridation of the public water supply. This is a process which has been proven by an excess of 25 years of experience and experimentation. The benefit of improved dental health, with safety and at a low cost is well known, yet it is a struggle to engage a community to even consider its usage. Some areas (San Diego) have discontinued fluoridation of public water because of continued harrassment to public officials and in spite of medical and dental endorsement of the process.

Physicians have pleaded over the years for improved auto safety, more strict law enforcement for youngsters driving motorcycles, flame resistant clothing for children, annual examinations for adults over 40 and frequent consideration of the seven danger signs of cancer. Still no one listens. We have expended time and energy giving free pre-natal clinics, free well-baby clinics, and clinics which offer instruction in the methods and usage for birth control, then it is necessary to hire a public health nurse whose task is to go out and find prospective patients and literally drag them in to receive these services.

Now, in the face of these efforts, the private physician is being told that the basic problem is—he is not properly utilizing his talents in the delivery of health services. He is maligned as not being interested in the patient and as being unconscious of medical costs, indeed, as being a major source of the rising cost.

In a recent interview for *Medical Economics*,[1] Mr. Wilbur Cohen asserted that the physician is a person with community responsibility because the community has furnished him with his education and a community paid hospital in which to work. Certainly, the physician is responsible to the community, just as any other well trained professional should be responsible, however, a community hospital is an institution for the convenience of the community patient, not a work-shop where the physician can earn a living, no more than the county court house is erected to allow the local attorney to derive financial benefit. Medical education is tendered by the community only in the sense that any community supports all of its educational structure, thus by Mr. Cohen's logic all persons receiving instruction from state supported institutions must be similarly bound to the community. In the same interview, Mr. Cohen states the individual practitioner should never overlook the attitude of the consumer. A quick glimpse at the present surroundings of health care reveals evidence that such attitudes are indeed a significant part of the problem of health costs.[2] It is the attitude of the consumer demanding the luxuries of health care that ac-

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counts for much of the rising costs of medical care. Any new innovation of treatment or equipment, any advance in medical skill or drugs is immediately demanded without initial concern for expense. The private room, convenience facilities, carpeting, electric beds, 24 hour nursing care, and similar such modalities are certainly not necessary for the physician to perform his medical tasks.

Now seriously consider, how is the private physician expected to view the prospect of comprehensive health planning? The spectrum is wide ranging from indifferent surrender to active, open, hostile verbal insurrection. Basically, I suspect that fear is the median. Fear that the physician is to be relegated to the position of a health technician rather than a decision maker who helps innovate health policy, fear that there will be a progressive waning of local authority in the health decision in spite of the construction of the Partnership For Health amendments.[3] Most of us are presently taunted by the futile effectiveness of the local school board decisions relative to similar matters where the "carrot" of federal assistance is being snatched away and the smart of the applied stick encourages adoption of the federal "recommendations." Perhaps suspicion and anxiety best characterize how the private physician is viewing area-wide planning; but this pessimism is not the total picture for the practitioner as a deliverer of health services DOES realize there are problems. We want to be in the middle of the planning; we are more than willing to give to the community what we can of our knowledge and experience and skills. We feel area-wide planning provides a great opportunity for the consumer of health services to learn firsthand just what the difficulties of organization and delivery really are. Perhaps in planning we can find the ANSWERS to such problems as overlapping hospital services, ineffective utilization of beds, the unnecessary hospital admission as well as the excessive hospital stay; misuse of personnel and shortages of medical and para-medical professionals.

We are readily acceptable to the innovation of programs which will offer efficiency, effectiveness and equity of medical care so long as such programs continue to retain the personal medical judgment of the physician; and, so long as the patient remains under the care of his individual physician; and, so long as there is just and equitable economic award.

Though we are, as we have always been, interested in progressive medical services for the improvement of patient welfare, we cannot agree with the Surgeon General when he states the major area of medical decision should be elevated to the social and political arena.[4]

We are happy that the enacted proposal asserts that comprehensive health services of high quality for every person are to be assured without interference with the existing patterns of private professional practice of medicine, dentistry, and the related healing arts.[3] This, however, does not seem possible as it is the present pattern of professional practice which is being challenged. Not to interfere with this pattern means a retention of the status quo. I do not visualize this as part of the "Road to 1977."[5]

Already, over the country, several medical societies have initiated area-wide planning programs. Though in the infant stages these committees are beginning to find answers and certainly to define the problems.

Physicians over our state are being actively encouraged to participate and cooperate in the functions of comprehensive planning. The idea of such planning is vast and most difficult to grasp clearly. We will all need all of the advantages of a partnership to define the outline, for the task of definition, measurement and resolution in the area of health services is very difficult. It is our greatest desire that a Partnership in Health will result in a marked strengthening of the weaknesses of the present system. Meanwhile, as practitioners, we will attempt to assuage our suspicions and anxieties and press forward toward an end which the medical profession has always supported, frequently without assistance, that of improved health care in a needful world.

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Aspects of Coronary Care*

Dorothy B. McPhail, CRNA**

"You have certainly got this hospital in turmoil," said a physician to me abruptly. His statement startled me. It was evident that the hospital was in turmoil, but most of the staff thought the cause was the installation of the new computer. Could I, one nurse, be blamed for the turmoil in the hospital? On reflection, I realized his accusation was true, for considerable turmoil had resulted from nursing activities.

For example, there was the vampirish voice that called pathology daily with that same eerie request, "One human heart. I cannot go on any longer without it. Just one heart, please." Next, every loose scrap of EKG paper strangely disappeared until one wondered what it was selling for. Then one day a visitor reported smoke billowing out of the classroom, not knowing if it were caused from a Bunsen burner, a bonfire, or a bomb. The same week wild screams came from the new wing of the building; at that instant the victim had been decapitated. There was the fleeting glimpse of the body being hurriedly stuffed into the suitcase just as the doctor stepped inside the recovery room door.

An obstetrician reported that his patient was having premature contractions—to have the nurse look at him brightly and inquire, "Atrial or ventricular?" The doctors had noticed that the hospital almost closed down for two hours in the afternoon, and few nurses were in sight. Was this a new fringe benefit won by collective bargaining and were nurses now having a siesta?

Such turmoil was caused by the preparation for opening a coronary care unit, and such experiences can be expected by those opening a unit. The nurses were not in siesta—far from it; they were in serious study taking classes in coronary care nursing. They, too, caused the smoke to billow out of the conference room as an overheated projector charred the cardiograms to ashes.

The screams from the new wing of the hospital were theirs, as they were busy with practice sessions in resuscitation. They became excited, a little loud and boisterious, and were surprised to look up and find they were surrounded by the police who had come to investigate the screams. About that time one of the nurses was attempting to get an open airway by extending the chin. She must have overdone it because she pulled the manikin's head completely off! Who could deny she had an open airway with the head completely off? The police decided they did not want resuscitation by any of our crew.

The nurses, too, collected the bits of EKG paper to keep in their scrapbooks, which hold treasured memories—not of Bill, Harry, and Frank, but of P.A.T., B.B.B., and Wenckebach. The body hurriedly stuffed into the suitcase was none other than Resusci-Anne, the manikin ideally made for CPR practice. After her cardiac arrest in each practice session, we interred her remains in a brown leather suitcase and returned her home on the bus to the Heart Association. The human heart was, of course, for the study of anatomy.

Drastic changes have taken place in the field of cardiac nursing as coronary care units have emerged. One group who holds the philosophy that nursing for the future is a deepening in the behavorial aspects of illness does not strongly favor coronary care nursing. The other group, however, who believes nursing should be a deepening in pathophysiology finds cardiac nursing a new exciting challenge.

Why has there been such a drastic change? Public enemy number one is coronary heart disease. It snuffed out 600,000 lives last year and was responsible for one-third of all deaths in the nation. Seemingly, it is a disease resulting from our affluent society, and perhaps like King Midas, our prosperity has turned to destroy us. The richer the country, the higher the incidence of coronary heart disease. It most commonly strikes the male between the ages of forty-five and sixty-five. It has been said that the average American man is the most overfed, oversmoked, underworked man in the world today, and the most he exercises is when he goes for the daily coffee break.

With the knowledge of these startling facts it is a surprise to no one that the United States

*Presented to the Arkansas State Nurses Association, October 1968.

**Director of Cardiopulmonary Education for Nurses, Arkansas Regional Medical Program.

Public Health Service has allocated large sums of money and conducted endless hours of research to combat our number one killer.

Certainly, prevention is the hoped for solution but nothing so foolproof as a vaccine has yet been developed. Real strides have been made, however, for the acutely ill patient, and new techniques have been developed to prevent death—or rather to snatch the victim from its clutches in the stage between physiologic and biologic death.

Research has shown that most people survive the original infarct but die later of complications. Of these deaths, half are due to arrhythmias. This one finding is very significant because many of these deaths are preventable by a sudden, electrical shock (defibrillation) to the heart.

It was then demonstrated by Dr. Zoll (1956) that the shock could be given through the chest wall, as well as directly to the heart in the open chest; but to be the most successful the shock should be given within two minutes after the arrest.

These findings had implications for nursing practice. If these lives were to be saved it would be by nurses—for rarely could a doctor be notified of an arrest, rush to the bedside and defibrillate —all within two precious minutes. If coronary victims were to have optimum care, it would be necessary for the nurse to follow the cardiac rhythm at all times. For this purpose a monitor was developed. Of equal importance to monitoring is direct observation of the patient. For this purpose, a coronary care unit was born: a special place, with special equipment, and a special staff.

The first unit was opened in 1962 by Dr. Hughes Day, Bethany Hospital, Kansas City. Today we have a "six-year-old child" who has grown pell-mell by leaps and bounds and who has caused a great deal of confusion.

Terms are confusing. The term, "coronary care unit," has different meanings to different people. The following terms are beginning to have wide general acceptance. A "combination unit" offers care for coronary patients in the same area with seriously ill patients. An "intensive care unit" is a special care area for any seriously ill patient and may also contain coronary care patients. A "coronary care unit" is generally considered a separate unit with a separate nursing staff for the care of coronary patients only. This arrangement is practical only in larger institutions, and a combination unit serves the average hospitals best.

The role of the nurse is confusing in this new setting. What is her position and what are her responsibilities? The emphasis is on total patient care, but it is a more complete care than the nurse has given before. From minute to minute she makes important independent decisions. Some situations require continued observation; some require notifying the physician; others require the immediate initiation of life saving measures solely on a nursing judgment.

The best is required of the nurse in the field of physiology as she must correlate the monitors with her observations. The best is required in the field of psychology as she must guide a patient and family through critical illness. The best is required in philosophy and religion as she meets one crisis after another, makes momentary decisions to or not to resuscitate, and decides for herself "what is death?"

The best is required in the field of public health, for a professional nurse will use her opportunities to teach preventive measures, and she will plan for the care of the patient at home. The best is required in the field of rehabilitation because immobility without adequate nursing measures has serious consequences.

The first radical change that has come in nursing is that the expert, experienced nurse is back at the bedside. Special education is necessary for this nurse. Various coronary care courses have emerged throughout the nation. Some are very good while others consisting of only a few lectures cause concern. The Public Health Service has set up experimental programs throughout the nation which are attempting to set standards for the others of us to follow. Hopefully, at least one nurse from each hospital will attend one of these courses and return to direct an inservice program.

The second radical change that has come in nursing is that the nurse is a key member of the coronary care team. She works as seldom before in a co-professional relationship with the physician. Each must respect the role of the other, and together they must plan policies and procedures which will insure the best possible management of their patients.

A third radical change that has come is that the nurse is now doing procedures such as defibrillation and resuscitation once clearly defined as medical practice.

There is naturally an endless flow of questions regarding legal implications for nurses who are doing these procedures. Defibrillation and resuscitation are in a "grey area", which means they are not clearly defined between medical and nursing practice. There are no laws in any state which give the nurse protection to do CPR and countershock. There are, however, resolutions by national professional organizations, joint statements by state organizations, written policies, and standing orders which help minimize legal risks for the nurse.

The American Heart Association has reclassified resuscitation from a medical procedure to an emergency procedure. The ANA Committee on Nursing Practice has published a special memo, "The Nurse and CPR", but it also urges each state nurses association to pass a joint resolution. About forty state nurses' associations now have joint resolutions. The Arkansas resolution is still in the committee for study. The American Medical Association passed its resolution last December, briefly stating its views recognizing the propriety of registered nurses, properly instructed, to defibrillate and resuscitate following a standing order.

Should a nurse then enter this new field with fear and trembling or perhaps not at all? No, the nurse following safeguards should not expect greater liability than anywhere else in the hospital, for every nurse now is responsible for her own actions. The safeguards can be summarized in four points:

1. *The nurse should be competently instructed.* There is presently no standard certification, but following Public Health Service guidelines regarding hours and subjects should be adequate. It is good to document the permanent record of nurses so instructed, as this would adequately protect her and the hospital.
2. *Policies should be established in writing,* with medical and nursing representation, following professional resolutions.
3. *Standing orders, signed by the physician should be placed in each chart.* A standing order, not signed and not in the chart is estimated to be of little legal value.
4. *Every nurse should have liability insurance.*

In conclusion, professional nursing today offers numerous exciting challenges one of which is the new role in cardiac care.

Potassium-Depletion Paralysis

B. C. Musselman, J. E. Wenzl, and R. V. Groover (200 First St SW, Rochester, Minn)

Amer J Dis Child 116:414-417 (Oct) 1968

A 4-year-old girl with gluten-induced enteropathy presented with severe potassium-depletion paralysis. The clinical picture suggested fulminating polyneuritis, but there were clues to the correct diagnosis—ie, severe muscle weakness with sparing of the muscles supplied by cranial nerves, normal sensory findings, history of loose bowel movements, and normal findings on examination of cerebrospinal fluid. Hypocalcemia became apparent (Chvostek sign and low value for serum calcium) during correction of the potassium deficiency. The excessive loss of potassium in steatorrhea deserves emphasis. After correction of her potassium deficiency, the patient remained well on a gluten-free diet alone.

Rubella Vaccination in Young Adult Females

M. Just et al (Kinderspital Basel, Basel, Switzerland)

Schweiz Med Wschr 98:1549-1551 (Oct 5) 1968

In a field trial, 232 young adult females were vaccinated with the Cendehill strain of the attenuated rubella virus vaccine. Of the 175 vaccinees with antibodies before the immunization, 91 (52%) showed no rise in antibody titer, while in 38 (22%) there was a significant rise in titer. Of the 57 vaccinees without antibodies before the immunization, 54 had high antirubella titers five to eight weeks after the vaccination. In only one of the vaccinated females no antibodies were detectable. In rare instances the immunized females suffered very faint, itching exanthems. No other side reactions were observed. Immunization against rubella is recommended for all girls in the last school year (15 to 18 years of age).

SURGERY at the UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE*

*Under the direction of Gilbert Campbell, M.D., Professor of Surgery.

Preanesthetic Medication Revisited

Charles W. Quimby, Jr., M. D.*

The reasons for using morphine sulphate (gr ¼) and scopolamine (gr 1/100th) preanesthetic medication in patients who were to receive open drop ether were clear. The scopolamine not only avoided the secretions caused by the irritating effects of ether on the respiratory passages, but also hopefully gave the patient a welcome amnesia for the ether induction. The morphine allayed his pain and gave some euphoria. This regimen was well suited for the anesthetic to be uesd.

With the advent of cyclopropane, it was found that this much premedication unduly depressed respiration on induction, thereby slowing induction and making it more difficult. Since cyclopropane is not as irritating as ether, the amounts were therefore reduced, but other combinations of drugs were not actively sought.

In 1946, Dripps and associates found that those patients who had received a narcotic for premedication were slow in awakening in the recovery room. These patients also showed signs of hypoventilation, low oxygen saturation and high CO_2. These conditions coupled with postoperative pain are most likely to lead to atelectasis, postoperative pneumonia, and other complications. When they changed their premedication from a narcotic to a barbiturate and still retained a belladona derivative, they found this regimen did not interfere with their management of anesthesia. But what is more important, they found more rapid awakening postoperatively and less hypoventilation in the recovery room. This group continued to use narcotics when the patient had pain.

The advent of rapid-acting intravenous barbiturates, such as Sodium Thiopental, Sodium Thiamylal, and Methohexital, and their use for rapid, pleasant induction made it unnecessary to protect the patient from the physically more unpleasant effects of a gaseous induction. Furthermore, the newer and more potent anesthetics, such as Halothane, are less irritating and somewhat more pleasant for the patient to experience. Hence, with the trend to, and the need for lighter preanesthetic medication to ease the patient's physical discomfort of induction, the psychic discomforts of the patient became more apparent.

Sheffer and Greifenstein, and Janis and Egbert and associates, have focused attention on patient's preanesthetic and preoperative tensions. Although Sheffer and Greifenstein were unable to explain the reason for their startling statistic, they found that about 20% of patients coming to surgery have the nearly delusional belief that general anesthesia permanently alters body function by loss, perversion, or penetration. On preanesthetic rounds, usually a few questions from the physician will identify those patients who hold this delusion. Rapport, confidence, and trust in the physician will go a long way to dispel this delusion. It is clear that no drug will remove this delusion.

Janis documented what is well known, the patient about to undergo anesthesia and operation is tense, apprehensive, and anxious. How apparent this is depends upon the individual patient. He also pointed out that the patient's level of preoperative anxiety and fear correlated well with how well the patient had come to terms

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with his impending operation and anesthesia. Those patients who had a moderate fear of, and anxiety about anesthesia and surgery, withstood the procedure well psychologically. Those patients at the extremes—those with great fear and anxiety and those with little or none—were more likely to have adverse psychological reactions to surgery and anesthesia. The very fearful, apprehensive patient is the one more likely to be given heavy premedication, than the *apparently* calm patient. Yet, heavy premedication benefits the very anxious patient least because drugs alone do not allay anxiety, and his anxiety will break through any but the heaviest preanesthetic medication.

The patient with little or no anxiety is no doubt using denial which is a common ego defense mechanism that masks his fear and anxiety. Obviously, drugs will not circumvent this defense, and in some cases it may not be appropriate to do so. Knorr calls attention to the fact that in mutilating, destructive operations, denial can be an excellent defense for the patient. In such cases, the clear inference is that denial can be used either to decrease or eliminate preanesthetic medication.

Egbert and associates showed the value of the preanesthetic visit. What they actually did was to compare the efficacy of the preanesthetic visit with the efficacy of preanesthetic medication. They found that those patients who had had a preanesthetic visit the night before surgery from an anesthesiologist, who was willing to spend time and discuss their question with them, and who had also received a barbiturate, were drowsy and the calmest of the four groups. Those patients who had had only a preanesthetic visit and *no* preanesthetic medication were calm, although not drowsy. Those patients who received preanesthetic medication only were drowsy but not necessarily calm. Of course, the least calm were those patients who received no medication and no visit from the anesthesiologist.

From the above, it is clear that heavy premedication was well adapted to an ether induction and anesthetic. Since anesthesia in a great majority of patients today is induced by an intravenous barbiturate, heavy premedication is not needed to blunt the experience of an unpleasant induction. From Egbert and associates' study, it is clear that a preanesthetic visit will go a long way to decrease the amount of or even eliminate the need for preanesthetic medication. This work has led to a re-examination of what uses preanesthetic medication is designed for. Then what shall the patient get for preanesthetic medication? Clinically, this question is better phrased: In view of the anesthetic to be administered to this patient, what is needed to assure a physically calm patient, and what effects of the proposed anesthetic need be decreased or avoided? The answer to this question depends upon the patient, the anesthetic to be given, and who is to give what anesthetic.

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Failure of Circumferential Craniotomy in Acute Traumatic Cerebral Swelling

K. Clark (5323 Harry Hines Div of Neurosurgery, Dallas), T. M. Nash, and G. C. Hutchison

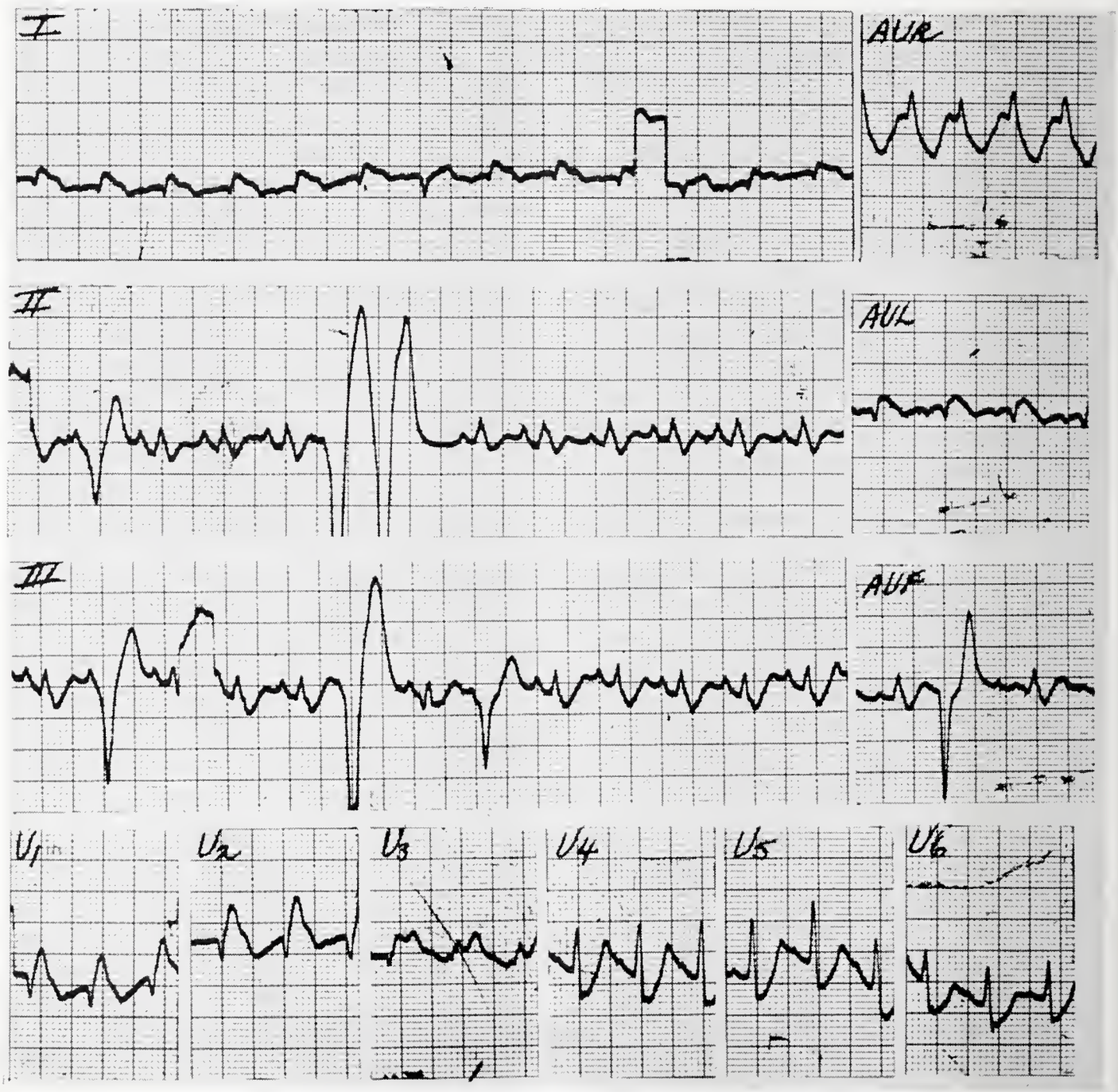
J Neurosurg 29:367-371 (Oct) 1968

Surgical attempts to control brain swelling have included resections of parts of the skull or brain. This paper deals with two patients treated by removal of a section of bone circumferentially around the skull. This allows the brain to swell upward as well as outward. Complications were noted in both patients and were felt related to the procedure. Hydrocephalus developed, probably due to herniation of cerebral tissue out of the defect. Expansion of the brain upward produced extensive lesions in the corpus collosum, the anterior superior cerebellum, and the quadrageminal plate. The procedure is not recommended.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 67 SEX: Male BUILD: Medium BLOOD PRESSURE: Not stated
CARDIAC DIAGNOSIS: Myocardial infarction (?)
OTHER DIAGNOSES: Fracture of femur 3 weeks prior.
MEDICATION: None
HISTORY: Sudden onset of chest pain and shortness of breath

See Answer on Page 308



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

PH

PUBLIC HEALTH AT A GLANCE

Division of Health Mobilization Disaster Preparedness Activities

The essentiality for continuity of health and medical service and the immediate availability of essential supplies necessitates the continued development of Emergency Health and Medical Service Planning; which includes stockpiling of essential items and training of personnel to more adequately function during time of disaster.

Regardless of the availability of outside assistance, the burden of caring for disaster casualties fall immediately upon the community and community hospitals. The State Department of Health, Division of Health Mobilization, is now working with communities and hospitals throughout the State in initiating and developing community Emergency Health Service Plans, which will eventually envelop the entire medical community and its supportive activities.

To provide the immediate availability of essential health supplies, authorities in the field of disaster medicine originated and designed the "Packaged Disaster Hospital" known as the P.D.H., and the "Hospital Reserve Disaster Inventory" referred to as the H.R.D.I. Unit. These Emergency Stockpile Units are made available by the United States Public Health Service through the Division of Health Mobilization, State Department of Health. The P.D.H. Unit contains all supplies and equipment needed to set up a complete 200-cot hospital and operate it for 30 days. These P.D.H.'s are affiliated with community hospitals which accept operational responsibility to assure optimum utilization if and when they are needed. The H.R.D.I. Unit is a 30-day back up stock of medicines and supplies which are placed on the shelves of community hospitals. In accepting the H.R.D.I. supplies, which are placed in the hospital at no charge, the hospital agrees to use them in its daily operations and at the same time to continue its normal rate of procurement. It thus keeps on hand at all times enough fresh supplies to provide disaster care for 30 days without relying on deliveries from outside sources. This could be of the utmost importance in a disaster when communications and transportation systems would possibly be disrupted and replenishing supplies of critical items in time to save disaster victims could become impossible.

There are *thirty-five* Community Hospitals in Arkansas presently participating in the Emergency Stockpile Program. When fully implemented, the "Packaged Disaster Hospital" and the "Hospital Reserve Disaster Inventory" Program will greatly increase the disaster patient care potential of the State of Arkansas.

The attached State Department of Health map indicates where the Packaged Disaster Hospitals and the Hospital Reserve Disaster Inventory Units are located throughout the State.

★ Packaged Disaster Hospital
■ Hospital Reserve Disaster Inventory

EDITORIAL

LIPOPROTEINS

Alfred Kahn, Jr., M.D.

Fredrickson, Levy, and Lees of the National Health Institute of Bethesda, Maryland have published a rather monumental review entitled "Fat Transport in Lipoprotenis—An Integrated Approach To Mechanisms And Disorders". It is published in five issues of the *New England Journal of Medicine*. Volume 276, page 34, January 5, 1967 is the first installment.

The lipids in plasma are said to be cholesterol and phospholipids to an extent of about 66%—they have a much slower turnover than free fatty acid, which, with its glyceride ester is "the major fat transports task". Most of the fat transported through plasma is free fatty acid; they are bound to albumen. The metabolism of the free fatty acid is under the control of the autonomic nervous system, insulin, and other hormones. 50% to 90% of the energy requirements are said to be met by free fatty acids.

Glycerides are broken down in the gut, absorbed and reformed in the epithelial cell. They are released as chylomicrons. Some glycerides are made in the liver.

Cholesterol although present in large quantities in plasma, has a low turnover; one of its most important jobs is to help transport other lipids in conjunction with proteins, etc. Phospholipids role in fat transport is apparently a minor one, although it is present in plasma in large amounts as phosphatidyl choline and sphingomyelin.

Because of the chemical nature of plasma, lipids do not circulate without attaching to protein, thus their name lipoproteins. They are of two types, alpha (high density) and beta (low density). There are many methods for their isolation, including chemical, ultra-centrifugation, electrophoresis, etc. The lipoproteins contain two main and one inconstant protein portions called apoproteins and labelled A, B, and C. The authors give a full chemical and immunologic discussion of these substances.

There are two forms of plasma glyceride transport: if their source is dietary fat, they will be carried on pre-beta lipoproteins and particles; glycerides from fats in the food are carried on chylomicrons.

The liver is the major organ in the manufacture of endogenous glycerides and circulating pre-beta proteins. The liver manufactures the glycerides from plasma acids from adipose tissue; the liver may make excess glycerides if more free fatty acid is released into the plasma than the liver can use. High carbohydrate diets increase the amount of glycerides; this is termed induction.

Exogenous glycerides help form chylomicrons and which are, of course, visible particles. They vary in size from 0.1 to 5 microns. The ghylomicrons contain large quantities of glycerides and smaller amounts of phospholipid and cholesterol. The chylomicrons are made up of their component parts in the intestinal mucosa cells and released into the lymphatics. The chylomicrons are rapidly removed from the circulation; their half life time when radio actively tagged is five minutes to fifteen minutes; most organs get chylomicron fatty acids. After a fast, the liver apparently clears most of the chylomicrons. If the subject has eaten, adipose tissue gets most of the chylomicrons. The authors state that hydrolysis seems fairly certain to be an important step in the removal of chylomicrons from the circulation. A further factor in disposal of chylomicrons is the taking up of the released fatty acids by the body's tissues.

The authors have reviewed disease states involving fat transport.

The inherited lipoprotein deficiency states, abeta-lipoproteinemia was orginally noted because of the odd shaped red blood cells associated with it; it is also characterized by retarded growth, neurological defects, degeneration in the spinal cord and retinal degeneration. Hypobeta proteinemia in which there is a small amount of beta lipoproteins have been reported. Tangier Disease is familial alpha lipoprotein deficiency and is characterized by the "gross deposition of cholesterol esters in reticulo-endothelial tissues"; the tonsils are characteristically large and orange.

Some disease conditions are characterized by hyperlipoproteinemia. Hyperlipoproteinemia type I has a high concentration of chylomicrons 14 hi after meals; the particles are large enough to scatter light and are fat induced; there is a secondary type, a primary type and an intermittent type. Type II, hyperlipoproteinemia is characterized by an increase in beta electrophoretic mobility with normal density and chemical composition of the beta migrating lipoproteins; this, too, is divided into a secondary and a familial (or primary) type. Type III, hyperlipoproteinemia, is characterized by an excess of beta migrating lipoproteins with an abnormally low density.

Type IV, hyperlipoproteinemia, is endogenous hyperlipoproteinemia in which glycerides synthesized in the body, usually in the liver, have been excreted into plasma at rates exceeding the capacity for removal. This may be associated with high caloric diet, stress, excessive carbohydrates, etc. Clinically, this is seen with xanthomas, foam type R.E. cells, abdominal pain, elevated blood uric acid, etc. Secondary type IV hyperlipoproteinemia indicates that the disorder is secondary to other diseases, as diabetes mellitus, pancreatitis, alcoholism, hypothyroidism, nephrosis, etc.

Type V hyperlipoproteinemia is the type found in patients who have both endogenous and exogenous hyperlipoproteinemia. Frequently these cases have abdominal pain. They have eruptive xanthomata. Usually the patients are obese. These patients are urged to reduce their weight, avoid alcohol and avoid excesses of dietary fat with carbohydrate.

This review by Fredrickson, Levy and Lees, of fat transport is a most important paper and every physician interested in metabolic diseases should read this. It should be of some interest to all physicians.

Hepatitis as It Relates to the Arctic

R. W. McCollum (Yale Univ School of Medicine, 333 Cedar St, New Haven, Conn)

Arch Environ Health 17:529-536 (Oct) 1968

The individual case of hepatitis occurring in a native, an immigrant, or a visitor in the Arctic does not differ significantly from its counterpart occurring in temperate or tropical settings. Demographic, social, and environmental characteristics imposed by geographical and climatic features provide the Arctic with an epidemiological uniqueness. Associated with changing ways of living, changing patterns of communication and means of transportation, and perhaps to some degree, with increased contacts with more southerly populations, hepatitis has spread steadily. The result has been continuously higher rates in areas such as Alaska and Greenland for the past 15 years. These two areas reveal major differences in age distribution and seasonal patterns of hepatitis. Major community epidemics have been a problem in Alaska but not in Greenland. In both settings, contact transmission has played the major role in hepatitis dissemination. However, the threat of common-source epidemics remains of major importance, and calls for special engineering considerations in the further extension of community water and sanitation facilities.

MEDICINE IN THE NEWS

The Month In Washington

Washington, D.C.—Three-fourths of the medicare Part B carriers now are using individual physician fee profiles in determining reasonable charges.

The Social Security Administration said that these carriers, a total of 36, collectively process 80 per cent of the medicare bills submitted by physicians. Prevailing fees continue as a major factor in the reasonable charges determined by the carriers.

The remaining 14 carriers which have not yet fully developed the individual physician fee profiles, or the computer capacity for using them, are employing other interim techniques. Some use, in addition to prevailing fees, fee schedules; others, relative value scales, or similar techniques, in determining reasonable charges.

The medicare law calls for individual determinations by the carrier which take into account the customary charges of the physician and the prevailing charges in the locality for similar services. In addition, carriers must assure that the charges determined to be reasonable for medicare beneficiaries are not higher than the charges for comparable services under comparable circumstances to their own policyholders and subscribers, according to the SSA.

Payment is to be made on the basis of the lowest of those three criteria, or the physician's actual charge, if that is still lower, the SSA said.

"Making a reasonable charge determination involves checking each bill against compiled data on the individual physician's customary charges for similar services and the prevailing level of charges for such services in the locality in which the physician practices," the SSA said.

"The development of physician fee profiles," according to Thomas M. Tierney, medicare's director, "present a unique challenge to both the SSA and the contracting carriers. At the time of medicare's enactment, there was no industry-wide pattern in the health insurance field on the approach to reasonable charge determination.

"There is evidence now that the successful application of the guidelines interpreting the medicare reasonable charge provisions, including the required development and use of individual physician fee profiles, is leading to a more systematized and consistent approach to the payment of physicians' bills in the health insurance field generally."

The medicare hospital deductible will be increased from $40 to $44 January 1, 1969. The law specifies that if an annual review shows that hospital costs have changed significantly, the hospital deductible amount must be adjusted for the following year. Necessary increases in the deductible amount are to be made in $4 steps to avoid small annual changes.

* * *

The shortage of physicians, particularly general practitioners was cited in a government report as a factor in the increase in physicians' fees since World War II.

The Bureau of Labor Statistics (BLS) reported that charges for medical care, including hospitalization, had risen at an annual rate of 3.9 per cent since World War II while prices of all consumer items combined advanced at a rate of 2.6 per cent per year. The bureau said that medical care prices had risen at a faster rate in recent years, 6.6 per cent in 1966 and 6.4 per cent in 1967.

The report said that physicians' fees, while not advancing as rapidly as hospital charges, had more than doubled in the past 10 years. Hospital charges more than quadrupled.

"The rise in physicians' fees during the 1946-67 period is partially due to the general rise in price levels and to the physicians' need for increased income to cover his personal and business costs," the report said.

"This is especially true for the past two years. Doctors have tended to attribute their higher fees in recent years to the general economic conditions and the higher cost of doing business. Neverthe-

less, some charges clearly reflect the shortage of doctors. With an overload of patients, physicians in some cases have tried to discourage the practice of making house calls by raising the rate for such a service to a level that few patients are willign to pay. The postwar emphasis on medical specialists has also helped to boost physicians' fees since general practitioners have become scarce and specialists, with their extra training are able to command higher fees."

The number of GP's declined from 73,593 in 1963 to 68,920 in 1967 while the number of physicians in all categories was increasing from 276,475 to 308,475.

The BLS conceded that its reports on health care costs do not give adequate consideration to improvements in the quality of medical care as reflected in longer life spans, improved and more efficient techniques for treatment, shorter hospital stays, etc.

"It is obvious that there are many problems of definition and measurement to be solved before any progress can be made in introducing appropriate methods of measuring medical care price changes in a more meaningful way," the report said.

Two other federal developments dealt with medical care for the poor. The Board of Medicine of the National Academy of Sciences announced start of a comprehensive, two-year study titled "Health and the Poor." A joint state-federal task force reported on its study of costs for medical and public assistance programs.

The Board of Medicine named a special panel for its study which will cover: the quantity and quality of medical care the poor now receive; existing federal programs, such as medicaid, antipoverty projects, maternal and child health programs, and community immunization programs; future needs and possible programs; and the economics of medical care for the poor.

Recommendations of the joint task force to the Department of Health, Education and Welfare included:

—States should draw samples to produce information on the current utilization of each of the medical care services offered, and their costs. The sample should provide data on how much of these costs are borne by the medical assistance program, and the amount that comes from other sources.

* * *

President Johnson signed into law a bill providing for tougher penalties for illegal traffic in amphetamines and barbiturates. LSD also is covered specifically.

The new makes illegal possession, manufacture or disposal of the drugs a misdemeanor carrying maximum penalties ranging from imprisonment of one year and a fine of $1,000 to imprisonment of 15 years and a fine of $20,000. Leniency is authorized for first offenders.

Johnson praised the law as a measure that will "strengthen the hands of our police and give our families protection." He said it should "put the drug peddler in jail." But, he added, the active support of all Americans—both adults and young—is needed.

* * *

Richard M. Nixon will take over as President pledged to oppose national compulsory health insurance and federal control of physicians' fees. Highlights of his position on health care issues:—

Federal Role in Medicine

The role of the federal government in medicine should be supportive, never dominating. It should serve as a catalyst and supplement private efforts only as needed.

Medicare

Although the program has been plagued by financial and administrative problems, it offers good potential if wisely administered.

Medicare must provide needed services at the lowest possible cost. The program could be endangered by a continuing escalation of costs.

More effort is needed to reduce dependence on costly hospitalization through better use of extended care facilities and increased use of outpatient care. Also needed is a re-examination of reimbursement formulas and experimentation with financial incentives to assure that the program encourages efficiency at all levels.

Medicaid

I favor the basic philosophy of medicaid—that of helping medical indigents who need aid to meet medical expenses. Unfortunately, the program has fallen short of its expectations. . . .

What is needed is a careful reassessment of medicaid, especially at the local level, with full professional guidance, and emphasis on advice from physicians. There also is a need for simplification of literature and application forms.

National Compulsory Health Insurance

I oppose a national compulsory health insurance program because I do not want to lower the quality of medical care in the United States. Also, new health programs should be geared only to persons in need. . . .

I want to see that every individual who needs medical care is able to get it. But I want it to be good medical care. That's why I want to keep the doctors free from government control as much as possible and oppose extension to a national compulsory health insurance program for everyone.

Compulsory Areawide Health Planning

I oppose compulsory areawide health planning. We can't assure communities better health planning just by making such groups compulsory. Areawide planning should be left to state and local determination.

Federal Control of Physicians' Fees

I oppose federal control of physicians' fees. Our system is an open, competitive market, assuring an individual the prerogative of setting a value on the services he performs. I would be as opposed to infringing on this right by regulation of physicians' fees as I would be to regulating fees charged by the members of any other profession.

Department of Health

As President, I intend to establish a Commission on Government Reorganization to study thoroughly ways of increasing efficiency in government organization as well as making it more responsive to the people.

Mental Health

We must develop new methods of treating the mentally ill. . . .

Tax Deductions for the Aged

The 100 percent income tax deduction for nonreimbursable drug and medical expenses of those over 65 should be restored.

Preventive Medicine

Preventive medicine is, in my judgment, both an opportunity and a major challenge to medicine.

Automated mass screening programs would seem to have great possibilities even though they are generally still in their infancy and therefore cannot yet be gauged concerning their effectiveness in preventing chronic illness and reducing deaths. Information about these programs is still inadequate to warrant a broad federal program.

Hill-Burton Act

As demand for hospital facilities increases, additional funds under the Hill-Burton Act for construction and modernization of such facilities will be required to supplement state and local efforts.

To assure the most efficient use and distribution of Hill-Burton funds, a proposal for bloc grants in this area should be considered.

Abortion Laws

Nothing should be done on the federal level. The abortion laws should be considered by each state, and should be acted upon by each state, depending upon the opinion in that state. . . . I do not think that a nationally-imposed law would be one which would be accepted in many parts of the country, and only when a state—a majority of people of the state—reach a conclusion that they want that kind of legislation, as they did in Colorado and as they may in the state of New York, should such a law be passed or considered.

Application Activity and MCAT Data of Applicants to the Class of 1967-68

More applications were submitted to U. S. medical schools for classes entering in 1967-68 than in any previous year, including the previous high of 1949-50, with its unusually large number of World War II veteran applicants. The 18,724 individuals submitting these 93,332 applications represented an increase of 3 per cent over the previous year and a rise of 30 per cent over 1960-61. These same applicants also applied to more schools, an average of 5 per individual, as compared with 4.8 for the 1966-67 class.

For 1967-68, 9,702 or 52 per cent of all applicants were offered admission, and all but 385 of those offered admission actually enrolled. These 385 were promptly replaced by other applicants and all available openings were filled as usual. For this entering class, 539 new places were made available, 114 by 4 new medical schools (Arizona, Brown, Hawaii and Pennsylvania State) and 425 by the 90 previously existing schools.

With respect to the immediate future, continued growth in medical school applicants is pre-

dicted on the basis of a) the substantial increase in the age group eligible for application to medical school, b) the rise in the number of students in undergraduate science programs, and c) the relatively favorable Selective Service deferment status of medical students as compared with other graduate students.

Table 1 presents a summary of application activity for each of the first-year medical school classes from 1960-61 to 1967-68. The number of first year places in 1967-68 rose significantly for the second consecutive year to a total freshman enrollment of 9,473. This trend will continue with the opening in 1968-69 of 5 additional schools (Connecticut, U. of California at Davis, U. of California at San Diego, U. of Texas at San Antonio and Mount Sinai) plus 2 more schools (Louisiana State at Shreveport and the Medical College of Ohio at Toledo) which are accepting classes for 1969-70.

TABLE 1

SUMMARY OF APPLICATION ACTIVITY, 1960-61 THROUGH 1967-68

First-Year Class	Total Applicants	Applications per Applicant	Total Applications	Accepted Applicants	New Entrants	First Year Enrollment*	Per Cent of Total Applicants Accepted
1960-61	14,397	3.8	54,662	8,560	8,069	8,298	59.5
1961-62	14,381	3.7	53,834	8,682	8,143	8,391	60.4
1962-63	15,847	3.7	59,054	8,959	8,394	8,642	56.5
1963-64	17,668	4.0	70,063	9,063	8,565	8,842	51.3
1964-65	19,168	4.4	84,571	9,043	8,587	8,836	47.2
1965-66	18,703	4.7	87,111	9,012	8,554	8,760	48.2
1966-67	18,250	4.8	87,627	9,123	8,775	8,991	50.0
1967-68	18,724	5.0	93,332	9,702	9,314	9,473	51.8

*Includes previously enrolled students. Enrollment for 1960-61 and 1961-62 based on AAMC-AMA Liaison Questionnaire data; that for 1962-63 and thereafter based on AAMC Applicant Study data.

TABLE 2

MEAN MCAT SCORES OF ACCEPTED, REJECTED, AND TOTAL APPLICANTS

1962-63 THROUGH 1967-68

First-Year Class	Mean MCAT Scores: Verbal Ability	Quantitative Ability	General Information	Science	No. Taking MCAT	Percentage of Total Applicants	Total Applicants
			ACCEPTED APPLICANTS				
1962-63	544	537	541	545	8,920	99.6	8,959
1963-64	537	552*	549	545	9,021	99.5	9,063
1964-65	540	567*	561	556	9,015	99.7	9,043
1965-66	541	583	565	549	8,983	99.7	9,012
1966-67	549	585	566	550	9,102	99.8	9,123
1967-68	554	596	566	565	9,676	99.7	9,702
			REJECTED APPLICANTS				
1962-63	475	464	485	460	6,515	94.6	6,888
1963-64	484	476*	501	467	8,247	95.8	8,605
1964-65	481	492*	509	473	9,802	96.8	10,125
1965-66	473	502	511	466	9,324	96.2	9,691
1966-67	488	510	516	478	8,788	96.3	9,127
1967-68	496	514	514	485	8,580	95.1	9,022
			TOTAL APPLICANTS				
1962-63	515	506	517	509	15,435	97.4	15,847
1963-64	511	516*	526	508	17,268	97.7	17,688
1964-65	509	528*	534	513	18,817	98.2	19,168
1965-66	507	542	538	507	18,307	97.9	18,703
1966-67	519	548	541	515	17,890	98.0	18,250
1967-68	527	558	542	527	18,256	97.5	18,724

*Figure has been adjusted. See Sedlacek, W. E., "The Study of Applicants 1965-66," *Journal of Medical Education*, Vol. 42, No. 1, January 1967, pp. 28-45.

As shown in Table 2, the proportion of 1967-68 applicants taking the Medical College Admission Test (MCAT) and their average scores are quite similar to those obtained by applicants in previous years. Thus the quality of the applicant pool, as measured by the MCAT, continues to remain at a high level.

Recent MCAT examinee figures also forecast a continued rise in the number of applicants. In 1966, 19,707 individuals took the MCAT; and a total of 18,256 individuals with MCAT scores applied for admission to U. S. medical schools for the fall of 1967. In 1967, the number of examinees rose to 22,288 which suggests that approximately 20,000 individuals submitted applications for the 1968-69 entering class. It is expected that some 26,000 students will take the MCAT during 1968 and that about 23,000 will apply for the 1969-70 entering class.

The projected size and quality of the applicant pool give added emphasis to the recent joint statements by the AAMC and the AMA, which have urged the continued expansion of medical school enrollments.

THINGS TO COME

Meeting to Be Held at University

The annual Postgraduate Course in Pediatrics of the University of Texas Medical Branch will be held in Galveston, Texas, March 13 and 14, 1969. The course will emphasize practical pediatrics with guest lecturers, Jerold F. Lucey, M.D., Professor of Pediatrics, University of Vermont, and W. Hugh Missildine, M.D., Associate Professor of Pediatrics and Psychiatry, Ohio State University. Round tables with faculty members of the University of Texas Medical Branch will cover problems in pediatric cardiology, fluid balance, metabolism, ophthalmology and orthopedics.

Registration fee will be $25. No charge for interns, residents or military physicians. Further information will be furnished by M. M. Nichols, M.D., Chairman, Pediatric Postgraduate Committee, University of Texas Medical Branch, Galveston, Texas 77550.

OBITUARY

Dr. James F. Williams

Dr. James F. Williams died November 8, 1968, at the age of 75. He was born at Hattieville, Arkansas, August 26, 1893, and moved to Texarkana in 1925. Dr. Williams was a member of the Church of Christ and the Texarkana Kiwanis Club. He served for 25 years as medical examiner of the Selective Service Board and was Miller County Health officer for a number of years. He attended Tulane School of Medicine and was graduated from the University of Arkansas School of Medicine in 1924. He served his internship at the Missouri Pacific Hospital in Little Rock. Survivors include his widow, Mrs. Lela Tucker Williams, two sons, three sisters, and three grandchildren.

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: Approximately 140 RHYTHM: Sinus tachycardia

P-R: .12 sec. QRS: .10 (?) sec. Q-T: .32 sec.

SIGNIFICANT ABNORMALITIES:

Frequent multifacal premature ventricular cantractians, accasianally paired recipracal displacement R-S-T segments with delayed intrinsicaid deflectian aver right precardium.
Depressed S-T aver left precardium.

INTERPRETATION: Abnarmal

Sinus tachycardia. Right bundle branch black (?).

Frequent multifacal premature ventricular cantractians.

Acute car pulmanale suggested.

COMMENT:

Acute antera-septal infarctian and changes due ta massive pulmanary embalism are frequently canfusing.

PERSONAL AND NEWS ITEMS

Dr. Blauw Has New Associate

Dr. Sam Cornwell of Tulsa has moved to Siloam Springs and will be associated with Dr. C. G. Blauw.

Foreign Doctors Visit Health Center

Ten foreign doctors recently visited the St. Francis County Health Center in Forrest City. The physicians traveled over the United States studying family planning programs under the auspices of the Agency for International Development. Dr. H. N. Cogburn helped supervise the activities for the group at the center.

Dr. Henry Addresses Club

Dr. Louise M. Henry of Fort Smith addressed the Soroptimist Club of Fort Smith in November. The subject of her talk was "Glaucoma".

Dr. Fletcher Honored

Dr. Thomas M. Fletcher was chosen as 1968 "Boss of the Year" by the Pulaski County Medical Assistants Society.

Dr. Dillaha Presented Award

Dr. Calvin J. Dillaha was named winner of the First Annual Dermatologic Discovery Award presented by the Dermatology at a recent meeting in Chicago.

Dr. Watson Retires

Dr. C. Fletcher Watson of Little Rock has been forced to retire from the practice of medicine because of injuries received in an automobile accident in 1967. He had practiced in Little Rock for thirty-one years.

Chiefs of Staff Elected

Dr. Richard F. Graham has been elected chief of the medical staff of St. Joseph's Hospital in Hot Springs for 1969. Dr. Robert L. Lewis will serve as vice chief of staff and Dr. Deno Pappas was selected as secretary.

The hospital administrator gave special recognition to Dr. W. K. Smith for 55 years of service; Dr. Louie Martin, 45 years; Dr. Frank Burton, 30 years; Drs. Robert Atkinson, Leeman King and Cecil Parkerson for 20 years.

* * * *

Dr. J. M. Williams will serve as chief of staff of the Community Methodist Hospital in Paragould for 1969. The vice chief of staff will be Dr. C. M. Baker and Dr. A. J. Baker will serve as secretary.

PROCEEDINGS OF SOCIETIES

The Polk County Medical Society

The Polk County Medical Society was one of the sponsors of the annual diabetes detection drive in Polk County conducted November 17-23. Dr. D. P. Hefner of Mena served as chairman of the drive for Polk County.

The Southeast Arkansas Medical Society

The Southeast Arkansas Medical Society met in Dumas in November. Dr. Jasper L. McPhail, associate dean in charge of clinical affairs at the University of Arkansas School of Medicine, was guest speaker. Dr. Wayne Lazenby, district councilor, presided at the meeting.

The Ashley County Medical Society

The Ashley County Medical Society sponsored a Mass Measles Immunization campaign in December. The shots were administered by State Health Department personnel.

New officers for the *Pulaski County Medical Society* are: Dr. Samuel B. Thompson, president; Dr. James L. Smith, vice president; Dr. Charles R. Henry, president-elect; Dr. Frank Morgan, treasurer-elect; Dr. Purcell Smith, secretary.

Dr. H. W. Thomas, president of the Arkansas Medical Society, and Dr. George Mitchell, Medical Director of Arkansas Blue Cross-Blue Shield, were guest speakers at a meeting of the Lawrence County Medical Society in December.

BOOK REVIEWS

THE MENTALLY ABNORMAL OFFENDER, Various Authors, Edited by A. V. S. de Reuck and Ruth Porter, illustrated, pp. 260, published by Little, Brown, and Company, Boston, 1968.

CYSTIC FIBROSIS, Various Authors, Edited by Ruth Porter and Maeve O'Connor, illustrated, pp. 150, published by Little, Brown, and Company, Boston, 1968.

HEARING MECHANISMS IN VERTEBRATES, Various Authors, Edited by A. V. S. de Reuck and Julie Knight, illustrated, pp. 324, published by Little, Brown, and Company, Boston, 1968.

CANCER—A MANUAL FOR PRACTITIONERS, Various Authors, Edited by Thomas W. Botsford, pp. 408, published by American Cancer Society, Inc., Boston, 1968.

Recent History of Ischemic Heart Disease and Duodenal Ulcer in Doctors

T. W. Meade et al (London School of Hygiene and Tropical Medicine, London)

Brit Med J 3:701-703 (Sept 21) 1968

Incidence data are presented for ischemic heart disease and duodenal ulcer among male medical practitioners aged 35 to 64. The incidence of first clinical episodes of ischemic heart disease altered little between 1947 and 1950, and 1957 and 1960, but increased in 1961 to 1965. Comparing the late 1940s and the early 1960s, there was a 60% rise of incidence at ages 45 to 54, but little change at other ages. Cases first presenting as "sudden" death increased between 1947 and 1950, and 1961 and 1965 by 111% at 45 to 54, and again changed little at 55 to 64. In bus conductors and insurance salesmen, the increase of incidence was greater than for the doctor at 45 to 54, and it occurred also over 55 years of age. The increase from the period 1947 to 1950 to 1961 to 1965 in mortality during all episodes of ischemic heart disease was the same in doctors as in the male population of England and Wales at 45 to 54, but at 55 to 64 was less. Changes in the smoking habits of doctors may be partly responsible for what appears to have been a realtively favorable experience of ischemic heart disease from 1947 to 1950 and 1961 to 1965, especially at ages 55 to 64. Incidence of duodenal ulcer at ages 35 to 64 declined steadily from 1947 to 1950 and 1961 to 1965.

Noonan's Syndrome and Ebstein's Malformation of the Tricuspid Valve

N. L. Wright, R. L. Summitt (860 Madison Ave., Memphis), and L. E. Ainger

Amer J Dis Child 116:367-372 (Oct) 1968

A 13-year-old girl showed the typical phenotypic findings of Noonan's syndrome and had an associated congenital cardiac lesion, Ebstein's anomaly of the tricuspid valve. Patients with the "male Turner syndrome" and phenotypic females having some of the physical features of the Ullrich-Turner syndrome with a normal chromosomal karyotype (46,XY or 46,XX) have been designated recently by the eponymic team "Noonan's syndrome." The heart lesion originally described as characteristic is pulmonic stenosis. The presence of Ebstein's anomaly in the patient reported here broadens the spectrum of cardiac anomalies in this syndrome.

Expectorant Activity of Water in Acute Asthma Attacks

E. M. Boyd (Queen's Univ, Kingston, Ontario, Canada) and C. E. Boyd

Amer J Dis Child 116:397-399 (Oct) 1968

The oral administration of distilled water to urethanized rabbits produced no significant effect upon the volume, specific gravity, total solids, and insoluble mucus of respiratory tract fluid in doses of from 1 to 100 ml/kg body weight. Larger doses depressed the volume output of respiratory tract fluid but killed the animals, the lethal dose (LD^{50}) $\pm$ SE being estimated to be 342 $\pm$ 14 ml/kg under these conditions. The results indicate that while inhalation of water vapor is of value in the therapy of local dehydration of the respiratory tract from factors such as inhalation of dry air, and that while water taken orally is of value against systemic dehydration in acute asthma of children, drinking of water probably does not in itself liquefy bronchial secretions in asthmatic children.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis Association

LUNG CANCER DETECTION BY CHEST X-RAYS AT SIX-MOUTH INTERVALS

In a controlled study in England, cancer of the lung was detected in a resectable stage more frequently when chest X-ray surveys of the population at risk were made at intervals of six months than when the surveys were three years apart.

An investigation was carried out to test the hypothesis that the early detection of lung cancer by frequent routine chest roentgenograms of the population at risk might improve the prognosis of the disease.

In a three-year study, comparison was made between the lung cancer experience of two random population groups, one of which was offered more frequent roentgenographic examinations than the other. The subjects were men 40 years of age or older who were employed in industry.

Chest roentgenograms were available to the men in one group, the test group, every six months. Those in the control group had roentgenograms only at the beginning and end of the study. A total of 29,723 were enrolled in the test group, of whom 29,416 were followed up, and 25,311 in the control group, of whom 25,044 were followed up. Smoking habits in the two groups were almost identical. There were no apparent occupational hazards in the industrial firms where the subjects were employed that might be expected to have a bearing on the development of lung cancer.

On initial survey, 31 cases of lung cancer were detected in the test group. At the mass surveys at six-month intervals, 59 cases were detected; at the final survey of the group, six cases. Among the controls, 20 cases were detected at the beginning of the study and 76 during the three years.

G. Z. Brett, M.D., "The Value of Lung Cancer Detection by Six-Monthly Chest Radiographs," *Thorax*, July 1968 (23:414).

CANCER DETECTED ELSEWHERE

At the end of the three years, 33 of the 59 patients whose cancer had been detected in the six-month surveys were alive and 26 had died. It was found that 36 patients in the test group and 59 in the control group, whose cancer had been discovered elsewhere, had died from lung cancer at some time between the first and last roentgenograms. Of the 36 in the test group, seven had died within six months of the initial chest film. The remainder had missed some or all of the six-month surveys. In the control group, three of the 59 deaths had occurred within six months of the initial examination.

When roentgenograms preceding the one which led to the diagnosis of lung cancer in the test group were reviewed, abnormalities that might have been related to the disease were noted for the first time in seven cases. Six of these were still suitable for resection.

In calculating the rate of detection of lung cancer, it was obvious that where the interval between the chest X-rays was approximately three years (the initial and final survey in the control group and the initial survey of the test group), the detection rates were almost identical.

However, where the interval was six months, as in the final survey of the test group, the rate of detection was considerably lower. This was attributed to the fact that many cases of lung cancer had already been discovered at the intermediate examinations of this group. The detection rate for the six-month surveys was remarkably constant. The mean annual incidence of lung cancer in the group was 0.9 per 1,000 examined.

RESECTABILITY

The resectability of the cancer found in the routine examinations every six months was compared with that of cases detected in the surveys at three-year intervals and with that detected by methods other than by mass X-ray surveys.

Thirty-one (61 per cent) of 51 cases discovered by the initial survey of both groups were resectable as compared with 42 (65 per cent) of the 65 cases detected in those examined every six months.

Thus, the chance of resection is not materially influenced by the frequency of the X-ray examination, but since more cases will be discovered by examination at six-month intervals, the number of patients given this chance will increase. However, the rates for resectability of cancer discovered by the surveys were decidedly higher than cancer discovered by other means, 5-6 per cent compared with the test group; 18.7 per cent as compared with the controls.

The study has shown that, due to more frequent examination of the same population, 59 cases of lung cancer were discovered which would not have been found at that particular time had only three-year surveys been employed.

The rate of resection in these cases was not significantly higher than in those discovered at the initial surveys of both the test and control groups conducted on conventional lines of mass radiography. This may be because the longer mass X-ray surveys are spaced out, the greater the number of patients with lung cancer who will have been diagnosed by other methods. Thus, the lung cancer remaining to be detected will have a relatively short period of roentgenographic detectability, probably not substantially different from that in the cancer detected in surveys at six-month intervals. This might account for the similarity of the resection figures.

In the design of the study the comparison of death rates from lung cancer between the test and control groups was of crucial importance. The lower lung cancer mortality observed in the test group might be interpreted as an indication that early diagnosis on the basis of roentgenographic examination every six months may have some effect on the future of the disease, but the difference in mortality between the groups was too small for this interpretation.

EVALUATION

The conclusion to be drawn must be based on both the positive and equivocal results of the study. If the value of the roentgenographic examinations every six months is to be measured only by a significant reduction of mortality from lung cancer in a population at risk, then no definite evidence has emerged to justify a policy of frequent large-scale surveys of this kind. However, if the merit of early diagnosis and a better chance of resection for a larger number of cancer patients is linked with even a small reduction of mortality, there is, without detracting from the importance of prevention by a change in smoking habits, reason why men in the cancer age should have chest X-rays regularly.

Retrospective Study of Smoking in Parkinson's Disease

M. D. Nefzger (National Research Council, 2101 Constitution Ave, NW, Washington, DC), F. A. Quadfasel, and V. C. Karl

Amer J. Epidem 88:149-158 (Sept) 1968

Reports that tobacco smokers are at a lower risk of incurring Parkinson's disease (PD) than are nonsmokers were reinvestigated by study of 198 VA hospital patients with PD and 198 other patients. A retrospective design was advantageous because case finding did not depend on the occurrence of death or the uncertain reporting of PD on death certificates. Smoking habits, particularly as they existed before the onset of PD, were assessed by personal interview. In contrast to control patients, fewer PD patients ever smoked cigarettes, cigars, or pipes and fewer chewed tobacco or used snuff. Before age 40 there were fewer regular daily cigarette smokers among PD patients. PD patients tended to start smoking cigarettes at an older age and to stop at a younger age. Diseases that are positively associated with smoking were infrequently reported in PD patients. Selective mortality from other diseases may explain the negative association between smoking and PD.

February, 1969

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Deep Venous Thrombosis and Thrombectomy

James T. Parsons, M.D.*

The surgical management of patients with deep venous thrombosis has been employed with increasing frequency during the past few years.[2,3,6,7,8] Perhaps it has been a natural sequence with the advent of improved surgical techniques and knowledge of the pathology of this well-defined clinical entity.[1,7] The basic pathology process is total or near-total occlusion of the deep venous return of an extremity by massive venous thrombus formation.

The clinical spectrum of deep venous thrombotic disease can be illustrated by two discrete clinical syndromes. The most common form of deep venous occlusive disease is phlegmasia alba dolens,[13,14,19] frequently associated with postpartum, the postoperative or the post-traumatic period. The causative factors appear to be dehydration, infections, trauma and foreign bodies. This form of venous thrombotic disease is rarely associated with pulmonary emboli, gangrenous changes, discoloration or severe edema of the involved extremity.

At the other end of the spectrum is phlegmasia cerulea dolens,[2,3,5,6,20,22,26] the least common of the deep venous occlusive syndromes. This, the most severe form of deep venous thrombotic disease, frequently is associated with systemic diseases such as typhoid fever, brucellos as severe malnutrition, dehydration, infections, and with some neoplasms. It frequently occurs in bedfast aged persons. The clinical picture may or may not be associated with gangrene or with shock. Severe pain, marked edema, and discoloration of the involved extremity are apparent. Peripheral pulses may or may not be palpable due to the associated edema and arterial insufficiency, the association of arterial insufficiency with or without gangrene has been an Historically enigma.[16,19,24,]

In reviewing the literature one is impressed by the numerous terms used to classify this entity. Such terms as "pseudoembolic phlebitis", "massive venous occlusion", "blue-phlebitis of Gregoire" and "massive thrombophlebitis" have been used in attempts to describe the phenomenon.[1,3,19,24]

Either form of venous thrombosis, if allowed to persist, represents a triple threat to the patient. In the acute phase of the disease the patient is markedly disabled by the associated pain, progressive edema and the possibility of pulmonary emboli. If phlegmasia alba dolens is allowed to persist the patient faces a 50 per cent risk of symptoms associated with some form of the post-phlebitis syndrome and its antecedent manifestations of recurrent edema, progressive pain and disability, varicosities and ulcer formation. If phlegmasia cerulea dolens is allowed to persist the patient faces a mortality rate of 25 per cent to 50 per cent and an amputation rate in excess of 60 per cent.[26,30] The association of pulmonary emboli is much greater than that seen with phelgmasia alba dolens. Changes associated with arterial insufficiency become manifest immediately.

Current medical management of the acute phase of phlegmasia alba dolens favors a prolonged period of rehabilitation, with graded activity, oral anticoagulation therapy and elastic support of the involved extremity. In most cases of deep venous thrombosis that involve the iliofemoral axis the patient faces a lifetime of continued disability due to inadequate recanalization, recurrent thrombosis and inadequate superficial venous collateral circulation.[16,17,19]

We have treated eleven patients who had deep venous thrombotic disease by venous thrombectomy. This management of venous thrombotic disease was initially described by Rene Leriche in 1948[19] and subsequently was introduced to this country by Mahorner in 1954.[20] The first large series of patients was reported by Fontaine in France in 1957.[13] Despite adequate publicity, the surgical management of venous thrombotic disease has been slow to gain favor in this country

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and in the Western Hemisphere. Perhaps this slowness is due to the sparsity in the literature of reports of long-term surgical follow up of these patients; the fear that operative manipulation may provoke a fatal pulmonary embolic episode; the possibility of thrombus reformation at the site of venotomy; and the lack of well-defined clinical and surgical disciplines for diagnosis.

Deep venous thrombosis may develop in any of several large venous tributaries. In the majority of cases reported involvement is in the iliofemoral, femoral-popliteal, and brachial-axillary venous system.[28]

Fortunately, deep venous thrombosis involves the iliac or femoral veins in approximately 90 per cent of the patients with phlegmasia alba dolens or phlegmasia cerulea dolens. Arterial signs simulating insufficiency and spasm accompanying either form of deep venous thrombosis are quite variable. Because of the associated edema formation and accompanying discoloration, the various arterial insufficiency syndromes may be difficult to interpret.

The pathogenesis of arterial insufficiency is debatable, but evidence of arterial insufficiency was present in all eleven cases reported here. Most authors think arterial insufficiency is caused by reflex spasm due to irritation in the region of the venous thrombus formation. However, this has not been true in all cases reported. Recent studies suggest that most of the arterial insufficiency is mechanical in nature, caused by massive venous obstruction.[3] Intelligent diagnosis and management of deep venous occlusive diseases important in effective treatment, includes total correction by removal of the occluding thrombus, with resultant patency and function of the involved venous tributary. According to Mahorner, temporary proximal control of the vena cava is accomplished by external pressure upon the abdomen and the use of the Valsalva maneuver by the anesthesiologist. Other surgeons had recommended exposing the vena cava and occluding it manually. It later became apparent from follow up studies of patients after both of these techniques that pulmonary emboli were more frequent and the morbidity was much greater. In performing thrombectomy it is necessary that total removal of the deep venous thrombus performed in addition to extraction of the peripheral extension, and that no thrombi be left in the vascular system. Total thrombectomy was performed in all eleven cases reported here.

In one patient the right iliac artery was totally occluding the left iliac vein necessitating reinsertion of the left iliac vein over the iliac artery. This patient was a nineteen year old white male who developed the onset of acute pain with edema and venous thrombosis.

During the past decade new instruments and techniques have been introduced for the surgical management of venous thrombosis.[8,12,25,30] The foremost of these has been the development of the balloon catheter, especially designed for venous thrombectomy, by Fogarty and his associates. The possible occurrence of pulmonary emboli during the performance of venous thrombectomy has been a valid objection to the use of this procedure. However, Fontaine and Tuchman reported a significantly higher incidence of death from pulmonary embolism in nonoperated patients than in those treated by surgical excision. With the balloon catheter, intraluminal occlusion of the inferior vena cava has been effective in preventing pulmonary emboli during the operative and immediate postoperative period. Anticoagulation therapy is used to prevent further thrombus formation and propagation. Most recently, dextran has been shown to be beneficial if used during the surgical operation and postoperatively. Anticoagulants should be used for at least three weeks following venous thrombectomy. Active and passive exercise during the postoperative period has been effective in maintaining venous return and reducing edema in the involved extremity. This was described initially by Veal and his associates.[30]

Surgical Techniques For Venous Thrombectomy

Following the diagnosis of deep venous thrombosis the Lee White clotting time is measured and the patient is heparinized to a value of three times normal. The leg is then bandaged with an ace bandage. The foot of the bed elevated, and preparations are made for surgical intervention. General anesthesia is favored; however, the procedure can be performed under local anesthesia if the condition of the patient is such that general anesthesia may be hazardous.

Both iliac vessels are exposed through a longitudinal angular incision. The diagnosis of deep venous thrombosis is then apparent before surgical manipulation or attempts at venous thrombectomy are carried out, temporary interruption

of the vena cava in the contralateral leg is accomplished by the introduction of a balloon catheter inserted into the saphenous bulb below the inguinal ligament. (Fig. 1) It is preferable to isolate the largest communicating branch available and to

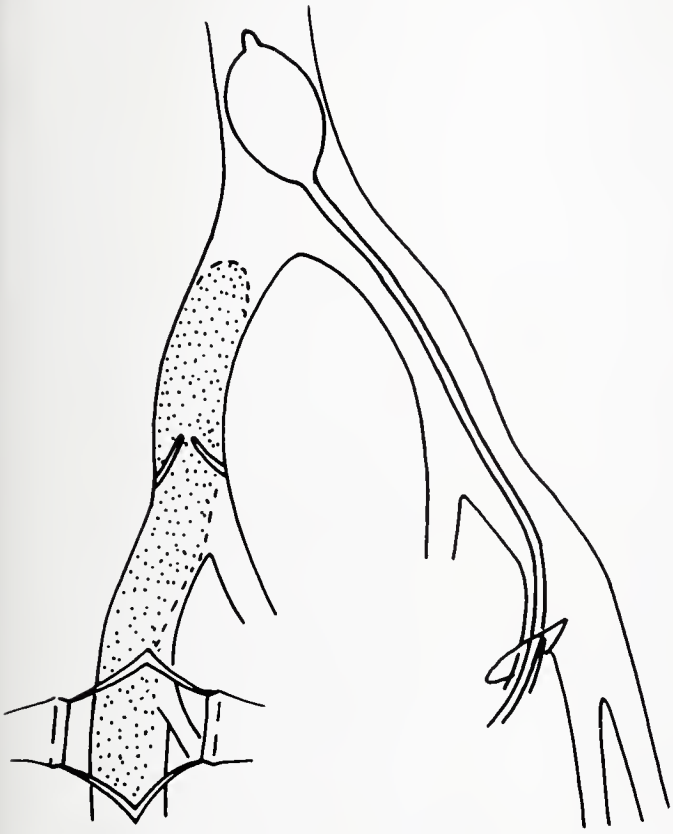

Figure 1. Before manipulation of the involved vein, a balloon catheter is introduced into the inferior vena cava through a left inguinal incision. This catheter is then inflated to prevent possible dislodgement of the thrombus.

use the more proximal end to insert the balloon catheter. If this is not feasible, direct introduction into the saphenous vein may be attempted.

Once the vessels in the affected extremity are exposed, both proximal and distal control of the femoral vein high in the femoral triangle is required. Local isolation of small communicating branches will prevent excess bleeding which might otherwise complicate manipulation and thrombectomy. It is preferable to use sharp dissection, since blunt dissection and manipulation of the vein may prove difficult.

The dissection and isolation of the involved vein should be completed as rapidly as possible, because profound shock and pulmonary edema may occur during sudden total occlusion of the inferior vena cava. An incision is then made in the femoral vein at the junction of the superficial and deep femoral veins and a second catheter is passed through the thrombus until it obstructs at the area of the inflated vena caval catheter. This catheter is then inflated immediately and serves as a temporary intraluminal obstructing point; the occasional profound hypotension associated with total inferior vena caval occlusion is avoided by deflation of the inferior vena caval catheter.

The performance of thrombectomy is best attempted by the use of still another intraluminal catheter, which can be inserted into the involved vein until further passage is prevented by the inflated catheter in the proximal iliac vessel. The third catheter is then inflated and withdrawn. (Fig. 2, 3) Some resistance cauesd by the presence of various valves in the iliac system may be felt, but by deflating slowly and maintaining intraluminal pressure to obstruct the iliac vein, the entire thrombus can be removed. Partial deflation of the catheter at the venous valves permits

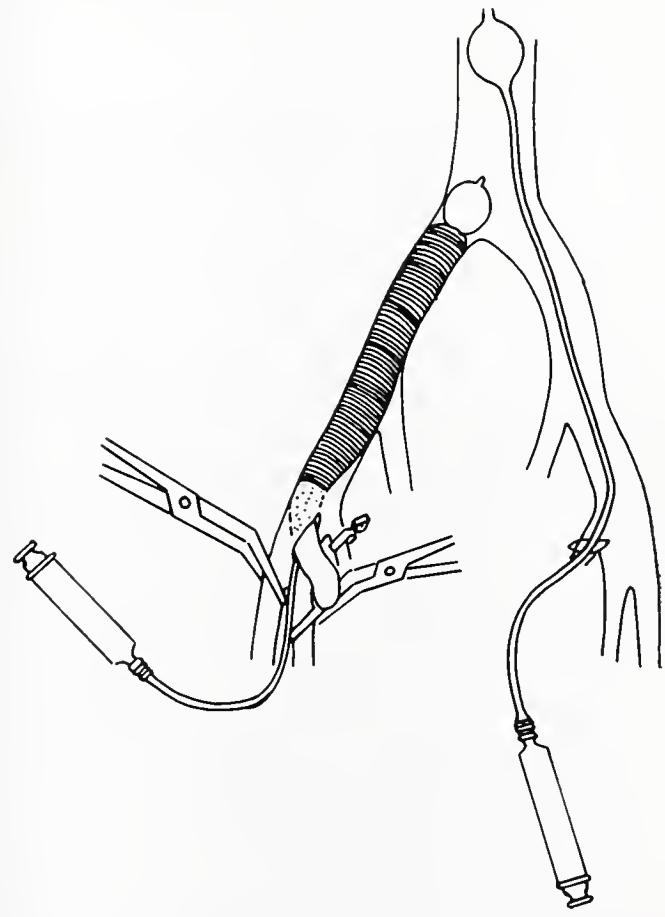

Figure 2. A second catheter is then introduced in the involved vein and passed through the thrombus until it coincides with the inflated catheter in the inferior vena cava. This catheter is then inflated and the first catheter is deflated so that adequate venous return may be maintained.

its atraumatic withdrawal. The total-occluding catheter in the proximal iliac segment is not deflated until complete extraction has been demonstrated. Backflow from the proximal iliac segment is not always a reliable indication of patency of the iliac system, since competent iliac and common femoral vein valves may prevent backflow.

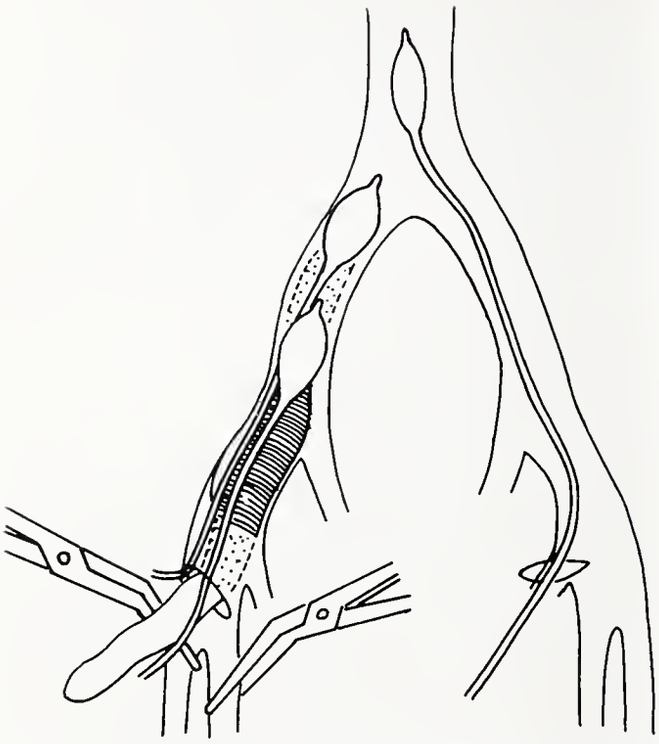

Figure 3. After inflation of the second catheter in the common iliac vein, thrombectomy is performed. If necessary, a third catheter may be employed in a similar manner to facilitate extraction of the thrombus.

Careful inspection of the thrombus is warranted; if it is relatively fresh, extraction can be performed without difficulty.

When the thrombosis is several days old, or if there has been a recurrent thrombus superimposed upon the old thrombophlebitis, the procedure may be technically difficult, if not impossible. It is necessary to inspect the distal deep femoral veins as well as superficial venous system: if these are thrombosed, the thrombus is removed by one of the above techniques.

The thrombus may extend into the popliteal system. If it does pressure upon the gastrocnemius and the quadriceps by an assistant may be necessary for extraction of the total thrombus.

Following adequate thrombectomy the venotomy is closed by continuous sutures of #5-0 polyethylene. Following thrombectomy capillary perfusion may be difficult to evaluate, because of edema, discoloration and decreased or absent peripheral pulses. If such a situation exists a longitudinal decompressing fasciotomy may be indicated.[26] This is accomplished by use of an instrument specially designed for closed fasciotomy.

Discussion

In most cases in this series it was possible to determine the cause of the deep venous thrombosis. (Table 1) The prime causative factors appeared to be dehydration, infection, trauma and factors contributing to venostasis. The clinical manifestation of specific signs and symptoms associated with deep venous thrombosis make the diagnosis possible. Preoperative venograms may be helpful in equivocal cases. Nonfatal pulmonary emboli occurred in two of the operative cases and vena caval clipping was instituted in each.

Table 1.
Etiology of Iliofemoral Thrombosis in Extremities of 11 Patients

	Etiology	Age of Patient (years)	Duration	Results
1.	Postpartum	23	24 hrs.	Excellent
2.	Traumatic	35	12 hrs.	Good
3.	Malignancy	66	48 hrs.	Fair
4.	Idiopathic	72	5 days	Poor
5.	Obstruction	19	24 hrs.	Excellent
6.	Postpartum	21	24 hrs.	Excellent
7.	Dehydration	76	6 days	Fair
8.	Idiopathic	30	48 hrs.	Good
9.	Dehydration	82	48 hrs.	Excellent
10.	Dehydration	70	72 hrs.	Good
11.	Idiopathic	62	48 hrs.	Good

In reviewing the literature it is evident that most authors believe good proximal back-bleeding is a prime indication of the success of thrombectomy. However, approximately 25 per cent of patients have a competent valve in the common or external iliac vein that prevents proximal flow and creates difficulty in evaluating this system. Operative venograms were done in six of our cases but was difficult to correlate the radiographic pictures with associated back-bleeding because residual clotting was demonstrated in four cases in which there was some degree of venous return.

Postoperative venograms were done in two cases because of persistent pain and swelling of the involved extremity. Postoperative venograms were obtained for a total of five patients between two weeks and six months after operation. Four disclosed no abnormalities and one revealed streamlining, with a residual thrombosis in the femoral iliac region. It appears from this study that there is a correlation between the clinical results and the findings in the postoperative venograms.

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Paradox in Modern Medicine

The Reverend Dr. Paul B. McCleave*

Medicine has perhaps learned more in the last 25 years than it learned in the preceding 500 years. What's going to happen in the next 25 years? It's almost unbelievable what's going to happen. Thank God, we're in this position.

You recall the picture of the doctor sitting by the bedside of the little boy, the mother standing at the door, the doctor's little black bag on the floor. As we walked away from that picture, we knew that when dawn came, the child's fever broke and he jumped up and went out to play in the daisies—this isn't true. Children died by the thousands when that picture was painted, because there wasn't enough medical knowledge in the little black bag.

Today, we can do so many things with medicine that we are finding ourselves in areas of paradox. It's wonderful, isn't it, that pneumonia is no longer the number one killer. It's wonderful that it is no longer the old man's friend. It's wonderful that we have so many hospital facilities and artificial means of saving life. We're saving lives as we never have before. A child born today can expect to live 72-73 years. Life expectancy has been extended by the facilities we have and the health treatment we can give.

But, on the other hand, there is the paradox of the patient who has been in an oxygen tent, has been in a coma from seven to eight weeks, has received blood for food, liquids for moisture, tubes for elimination. His body is burning up with fever, and he is being eaten away by cancer. That which was a body of 125 pounds is now down to 82 pounds. Why? Is this life? What is life? Isn't there any dignity in death? Don't I have a right to die? Doctor, when I'm in that position, don't continue with such measures, because I have a right to die in dignity. What is the problem in our professions—are we afraid of death? Is this why we continue to prolong life, because we are afraid? As doctors, we need to recognize that just because someone dies, we are not failures. I am sorry, Mr. Physician, but the Creator at the very beginning of time decided that we were going to die, and there is nothing we can do about it—each man dies. Oh, I know feature stories say that we are going to freeze bodies now and put them away for many years, and when we find the cure, we are going to bring them back. Well, this is fine, but someday the body dies—all organisms die. It is the rule of nature. I'm not advocating mercy killing, or euthanasia. I am talking about permitting a person to have the dignity of death without suffering and pain. I know that the church has said, "Well, Doctor, don't worry. You don't need to use extraordinary measures, just use ordinary things to maintain life." But the strange part of it is, what was extraordinary yesterday, is ordinary today; and what is extraordinary today is going to be ordinary tomorrow in medical practice. Blood transfusion yesterday was extraordinary means. I'm glad it was, because when I was in seminary, I used to get fifteen dollars for every pint of blood I gave, and that paid my food bill. Today, transfusion is so commonplace, I give it away free. The physician, the clergyman, and the family need to understand the seriousness and the circumstance of what is taking place. Knowledge of death brings deepest love and affection, not grief.

Isn't there dignity in death? What are we afraid of? The clergyman preaches eternal life, but of death he is afraid. The physician struggles against it, and why? Recently, the Indiana Legislature passed an appropriation bill for one hundred fifty-eight thousand seven hundred and twenty-four dollars to pay the hospital bill of a state trooper who was struck eight and a half years ago by a passing automobile and only recently died. When he died he was 36, which made him 27½ when he was struck. He had a wife and three little children. Is there any morality to this? What are we doing? Why?

Isn't it wonderful that we have incubators and isolettes in hospitals? Isn't it wonderful that we have miracle drugs? There are children playing in our communities today who would have died had we not had these things. It is remarkable, it's wonderful—thank God, we've got them.

Then the paradox, then the paradox. The extreme microcephalic is born, a literal monster. He has no mentality, no forehead, and never will have. Yesteryear, an infection or pneumonia would set in—in two or three hours, two or three

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weeks, two or three months, the child died. We carried the mother through the grief-stricken period and returned her to her family, perhaps to have other children later on. But now we can keep this child alive thirty, forty, fifty, sixty years. Why? Why? So that it can lie on its back all of these years, with lackluster eyes staring at the ceiling, never able to receive love or give love, to understand or know. When it's 43, you're still changing its diapers, you're still feeding it with a tube in its mouth. This is modern medicine. It is more than a matter of deciding whether a child is to be institutionalized, or to stay home. This is a matter of years and years and years on end. The child can even outlive its mother—then who's going to love it and be concerned? You say, "Well, this doesn't happen."

Recently in Michigan, I heard their commissioner of Public Health plead with the State Medical Society to ask the Legislature for more facilities because 1,200 of these babies were being institutionalized in Michigan every year. Why? I'm not talking mercy killing or euthanasia. But I just wonder about the wisdom of placing a child like this in an incubator when it gets pneumonia. Rather than face the problem, maybe it's simpler just to institutionalize the child and keep treating it with the miracle drugs, and keep it in an incubator or isolette during the early days. This is much simpler than facing up to what we are talking about, which is: what is life? This is the paradox in modern medicine. The patient and family alike have the problem. We need some consultation. Why shouldn't the doctor have a right to talk to a clergyman about the family, and its background, and what should be done to help? What is wrong with consultation between the two professions?

Another complex area of modern medicine is social illness. We have hidden it so long we have made it a matter of shame, and have forgotten that the person is ill. Both professions are at fault, and both professions have created part of the problem. The third largest disease in America is alcoholism. There are about as many women as men alcoholics, although the men are most often pointed at. One reason we are having trouble is that we have forced this problem into the back closet. We refuse to look upon the alcoholic as a person who is ill. I'm not talking about people on welfare. I'm talking about your neighbors and maybe those right in my house.

As an example, let us consider a great corporation and its officers. There is a vice-president in charge of international relations. His department was the greatest profit-making section within the corporation. He was an officer and a member of the board of directors. If this man had gone to his internist for his annual checkup and the report had come back that he had a malignant tumor, that corporation would have gone all out to give him the finest medical care that they could secure. They would have given him a leave of absence—anything to get him once again behind his desk. But unfortunately he was an alcoholic, so they fired him. There are many corporate managements which are concerned with this problem and are working at it, through their personnel departments. But the attitude of our culture and our society is that the alcoholic is somebody who doesn't have guts enough to say no; the alcoholic is somebody with a yellow back. This isn't true. Alcoholics are sick, as ill as anyone with a malignant tumor. Our main problem is that both of our professions realize the amount of time it will consume to care for and treat the patient; therefore, we don't want to mess with him.

Isn't it strange what we have done in our society. That is, if my wife had a malignancy, I would love her even more than I love her tonight—if it could be possible. My desire would be to grace her with tenderness, love and affection. But if she were an alcoholic, she would lose the respect of her friends, and my love. Our children would sneer at her. Why? Why? She would be as sick as if she had a malignancy.

It is time that society recognizes that the person who is an alcoholic is ill, that an early indication of illness is what we need, that the disease can be arrested. A.A. does a tremendous job, but it isn't big enough. At any rate, who is concerned about the health of the people—Medicine and Religion. We need all the help we can get; we need to change society's attitude about alcoholism. It's too bad that the alcoholic isn't just a sinner, because then maybe, through the Holy Ghost, we could convert him and get him back up on his feet and send him on his way. Wouldn't it be wonderful if we had a pill that would arrest this illness? But the alcoholic is not a sinner in that sense and we don't have a pill. It's a long process of rehabilitation we need to be concerned with.

You know there is a pretty fine cobweb that stands between "yes" and "no" in a moment of

deep passion and emotion—a pretty fine cobweb. So the mother comes into the clergyman's office or the physician's office with her daughter—the unwed mother. Again, I'm not talking about the illegitimate children of the welfare roles. I am talking about people who live on your street, next door to you, and right in our homes. Maybe this is the reason that we ought to be concerned. Our first answer is to run down to the courthouse and get a marriage license—this makes it legal, or does it? Maybe this is the reason that we have so many marriages that end in divorce, (one in three, you know).

It is a sizeable problem that one out of six brides standing in her bridal gown during her marriage ceremony is pregnant. If we don't get a marriage license to make it legal, then we have a wonderful little story that we tell. "Susie loves her grandmother such as no grandchild ever loved her grandmother. Grandmother fell down the stairs and broke her hip (in a town about 500 or 600 miles away from you). Susie gives up the junior-senior prom, the graduation, everything else—just to go and take care of Grandmother." Who's kidding whom—Susie is pregnant. The stories we tell. Susie at this moment needs the love of her mother. She needs the confidence of her father, and she needs the certainty of a physician that she knows. Susie isn't physically ill, Susie is in the blossom of life, she is pregnant. So we send her out of town (I am not criticizing the Salvation Army homes and others). It is strange, isn't it? We send Susie to the home and lock the front door. To me it is a little late—it's like putting a padlock on the door after the horse is stolen. We make Susie a prisoner. Why? Well, she is an adulteress. Society says so. I suggest that God forgives the adulteress—but society doesn't.

Maybe we ought to start thinking about a whole new concept of this problem. The other day I was talking with two physicians about this and other problems when one mentioned, "If I had a daughter who was in a situation like that, I would see to it that she was aborted." The other doctor said, "Where are you going to find him?" The first said, "I don't know, but we'd find him." I am opposed to this on more grounds than some people might think. But this is the problem. What's the answer? The answer isn't so easily settled by just running down to the courthouse and getting a marriage license, and the settlement isn't just so easy as running to another town. What are you then going to do? Keep the baby, or have it adopted? Is the girl going to see her baby?

Further, what of the parents and their illness? "Why did we let Susie go out with that fellow? Why didn't we have her home by eleven instead of one-thirty? Why do these things happen to us? What was wrong in our home that she forgot her moral teachings?" The parents are ill, they need care and treatment. It will require more than a tranquilizer for them to regain total health. Oft-times it is the clergyman in consultation with the physician, the unwed mother and the parents who add much to the care and treatment of the parents and daughter.

To many women the "pill" has been a tremendous boon. It has made possible family planning, and certainly doubt is gone. Certain faith groups are opposed to the "pill" and other contraceptive devices, but the fact remains that there are millions of American women to whom the "pill" and other aids have been a boon. But there is a paradox. You are a physician sitting in your office when a mother arrives with her 17-year-old daughter and says, "Susie is a wonderful girl, and her father and I have great confidence in her, but she is leaving for college and, just to be sure, I want you to prescribe the 'pill'."

What is your answer? Did you know that the majority of the physician-members of the campus health service, meeting recently in San Francisco, indicated that they prescribe the "pill" to coeds? The pressure, the strain, the request is here. What is your answer?

It reminds me of the annual Pennsylvania State Medical Society meeting, which spent a whole day on population explosion, contraceptives, and moral, medical and ethical involvement. There was a priest, a rabbi and a pastor on a panel. I was the moderator. At the end of the day, a doctor got up and asked this very question, "What happens and what do I do in my office? What is my answer?" Well, you know clergymen. We walk up to something and back off, we go up this side and come around, we go over here and we go over there and we go up and we come back down. This is what the panel did, never coming to a conclusion. The physician again asked his question, "I want the moderator to answer the question because they didn't—now what is the answer?" "Well", I said, "this is the advantage of being moderator. I'm the devil's advocate; I don't have

to answer anything." He said, "I want an answer." Another doctor stood up and he said, "I'm afraid that the clergymen don't understand the size of this dilemma." Then he said, "Last spring, a mother brought a 12-year-old into my office and said that she wanted the 'pill' prescribed for her because she was going to a two-week day camp." So the paradox occurs. Do you or don't you? What are the circumstances? The physician kept needling me, "I want an answer." I responded, "Doctor, I don't know. I haven't thought it through myself since it has just now come up, but I suggest that a physician has a right to accept or reject a patient." I further said, "As a clergyman, I think I would answer this side of it. I would excuse the young lady and say to the mother, 'What are you trying to do, make your daughter an adulteress?' "

I know that you are aware that we have a new medical journal for the laity. You know we used to have just the READER'S DIGEST, but now we also have LIFE Magazine. A couple of years ago there was a fine article in LIFE. It was talking about kidney transplants. As you read the article and the captions under the pictures, you probably come to the conclusion that, like a fairy story, he lives happily ever after. I can't bet because I am a clergyman, but I can wager. (Well, there is a difference; a wager is a sure thing. Of course, I have lost on some wagers.) But anyway, I'll wager that within six months to a year after the operation, the man will be dead. Fortunately, our body—and this is the paradox—has antibodies to destroy foreign tissue or infection. Can't you see this white army of corpuscle antibodies rushing down and surrounding the tissue and destroying it? This is what takes place in a kidney transplant. Now then, how would you like to be the parents of minor twin sons, one of whom needed a kidney transplant. The parents had to sign for the surgical transplant to take place. Paul was the donor to John, who needed a kidney. John, who was the recipient of that kidney, is still alive; but Paul, the donor, in the meantime got kidney illness. There wasn't a kidney for him. He is dead, and you, the parent, signed the consent.

This is modern medicine. Don't misunderstand me, I am not opposed to organ transplant. Medical research will find an answer. May I remind you that this is not a compassionate, emotional moment. There's risk involved, and the doctor needs to express this to the family. As an illustration, someone comes to me and says, "Paul, your brother needs a kidney." I say, "Well fine, get one for him." "No, you give him one." "No, I'm not going to give my brother a kidney." "Don't you love your brother?" "Greater love hath no man than this that he lay down his life for his brother, but I am not going to lay down my life for my brother." "Why not?" "Because I have a wife and three children. You take one of my kidneys, what if I get kidney illness? Where does my moral responsibility lie—with my brother or my family?" This is another problem of modern medicine.

As far as organ transplant is concerned, I suggest that there is no organ in anybody's body that is sacred. If I lose a limb, I replace it with an artificial limb. If I needed a liver and it were possible to use a pig's liver that would function, I would be happy to have it. I don't see anything sacred about any part of the body.

Speaking of kidneys, there are tens of thousands of patients in America today with kidney illness. They need help, and thank goodness we have the renal dialysis machine. With the use of machines, hundreds of men and women are alive, working, productive and useful. The cost: between eight and fifteen thousand dollars per year per patient.

On the other hand, how would you like to be on the selection committee, composed of a surgeon, a clergyman, a banker, an attorney, a housewife, a truck driver and a retail salesman? The medical society suggests five patients and your committee interviews the five patients—maybe sometimes visiting with the families of the five. Then, you select one, knowing full well that the other four will be dead in three weeks. How would you like to be on this committee? These selections are going on all over the United States every week. This is the paradox. It is wonderful to have the machine, but how would you like to be on the selection committees? Somebody says they are playing God. They are not playing God. Heavens, what if you are standing on a street corner and there are two little children playing in the street, and a runaway truck was coming upon them. You couldn't get both of them, but you could save one. Would you just stand on the corner and say, "Well, I can't make up my mind which one to save, so I'll just stand here and let both get killed." No, you would run out and give life to the one, and this is what the committees are doing, giving life to one.

Let's go into tomorrow, because future medicine is so fascinating that the things we will be able to do for people is beyond our greatest dreams. I am fascinated to think what we will do in protecting the health of mankind. When I say protecting the health of mankind, I speak of protecting the physical health. But if we are not concerned about the other areas of man, then man soon is going to find himself like a spinning top—physically fine, mentally, spiritually and socially fouled up. This is not health.

A few weeks ago the world was startled and fascinated by the report from South Africa of the news of the heart transplant. The procedure was successful so we were told by the press. Dr. Christian Bernard became an international name, a surgeon with the golden hands. Now, again, another transplant has been done by his team in addition to two attempts here in America.

Reporters called my office striving to find a moral issue involved but to me there is none. Max Lerner, a noted columnist, wrote an article on the heart and brain in which he set up straw men so as to raise many questions which might be involved in moral and ethical decisions. No doubt there were many conversations in many living rooms across the nation in regard to the question what is life and where is it?

From the state of Indiana, a medical school professor was in Chicago a few weeks ago, speaking to an electronics convention. He said that medical schools are already experimenting with a plastic mechanical heart in animals. In the fall of 1968, surgeons plan to remove the heart of a man and replace it with a plastic heart. This is wonderful. After all, we have people today with pacemakers, so why not a plastic heart? It's wonderful what we are doing in medicine, but to the physician and the theologian, I ask, what are we going to do with society?

Life exists when the heart continues to beat. When it stops, you're dead. In some states, the law says that when a man's heart stops beating, he is legally dead. This helps the coroner fill out his report. In cases of heart arrest, we massage the heart to get it pulsating again. We hope that we can start it before four to six minutes are up so that the patient will have some brain left. Where is life? You know what they will say: "It's in the heart?" Actually society used the heart as a symbol, but we have accepted the symbol as a fact. Where is love, where is compassion, where is mercy—in the heart? Well, not when you put a plastic heart in a man. When is he going to die? Isn't it facetious to say, when he forgets to plug in his batteries? All I am saying is that there is nothing wrong with a plastic heart in my theology, but we are certainly going to have to change the attitude of society.

We need to recognize again that medicine and religion must play an important part in the future of humanity's needs. May I review some of the illustrations that we have used tonight. The terminally ill—we can handle the problems simply by telling the family that the patient is soon to die. But there is more to it, regardless of what we may think about a man's faith. His faith is vital to his life. Whether we agree with his faith doesn't make any difference. We must care for and treat this man within that faith. A man has a right to set his spiritual things in order as well as his secular things. Humanity still has dignity; and ofttimes the clergyman can be of real assistance. It takes both professions to handle this problem.

In the areas of all social illness, unless medicine and religion find some answers and guide lines for society, then the press is going to do it for society. When the morals of our society are guided by the press, God help us. I have no argument with the press—they are very kind to me—but it is our responsibility. It is medicine's responsibility and the theologian's responsibility to set guide lines by which society's life may be directed. That people might have the fullness of life that the whole man can expect and anticipate.

Breast Cancer After Exposure to Atomic Bombings of Hiroshima and Nagasaki

C. K. Wanebo et al (K. G. Johnson, Dept of Public Health, Cornell Univ Medical College, New York)

New Eng J Med 279:667-671 (Sept 26) 1968

Information on breast cancer among survivors of the atomic bombings has now accumulated to the point where a fairly definite carcinogenic effect seems established. In women exposed to 90 rads or more, breast cancer developed at two to four times the rates observed in the comparison group of the study sample and in the reported rates for Miyagi Prefecture. The onset of breast cancer relatively early in life, before the menopause, distinguished the irradiated group of patients from the group of female controls.

Techniques of Emergency Splinting

Harold H. Chakales, M.D.*

I. An integral part in the treatment of all traumatic injuries of the extremities is the use of temporary immobilization until permanent treatment is instituted.

The two main reasons for immobilization are:

1. Relief of pain.
2. Prevention of further damage to those parts already injured.

Almost all peripheral fractures and associated injuries can be temporarily immobilized with these four (4) splints.

1. Mason Allen Hand Splint
2. Metal arm splint (short or long arm)
3. Metal leg splint (short or long leg)
4. Thomas splint with a full ring.

II. The basic techniques for the application of all splints are as follows:

1. Pad the splint well with some form of soft material, i.e., ABD's. This is to provide maximum comfort as well as to prevent pressure necrosis on bony prominences.

2. Try to place the injured extremity in the normal or as close to the normal functional anatomical position. Dislocated joints should be reduced even if the injury is an open (compound) fracture dislocation.

3. Clean all wounds with surgical soap and apply a clean dressing before applying the splint.

4. Wrap the injured extremity to the splint using a wrap around bandage with some give. However, do not wrap too tight because circulatory embarrassment can occur.

Figure 1
Mason-Allen Aluminum Splint.

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5. Always immobilize all suspected fractures prior to sending them to X-ray. This is often violated causing the patient much discomfort.

III. Specific splints.

1. Mason Allen Splint—A molded aluminum splint which can be used for injuries to the hand and wrist. Its construction automatically places the hand in the position of function. (Figs. 1 and 2)

Figure 2
Hand lying on top of splint: The dome at the distal end automatically places the hand in position of function.

2. Metal Arm Splint—The short arm splint can be used for wrist injuries as well as non-displaced fractures of the distal forearm.

The long arm splint should be used for forearm, elbow, and distal humeral fractures. (Figs. 3, 4, and 5)

Figure 3
Long-arm metal splint. The elbow is flexed at 90 degrees.

3. Metal Leg Splints—The long leg splint should be used in fractures from above the ankle

Figure 4
Arm lying on long arm splint with padding. The forearm can be held in suppination (palm up) or pronation (palm down).

Figure 5
Arm in splint with ace bandage loosely wrapped around it in order to immobilize it effectively.

up to the distal femur. A short leg splint can be used on injuries of the ankle and foot. The leg is placed in extension at the knee and the ankle is at right angle to the floor (90°). (Figs. 6, 7, and 8)

Figure 6
Short leg metal splint with padding. Ankle is at 90 degrees.

4. Thomas (Ring) Splint—It is used for fractures of the femoral shaft and hip. This allows axial traction to be applied to the injured leg. (Figs. 9, 10, 11, 12, and 13)

Figure 7
Foot and ankle effectively immobilized in short leg splint with adequate padding.

Figure 8
Long leg splint with knee in complete extension and ankle at 90 degrees.

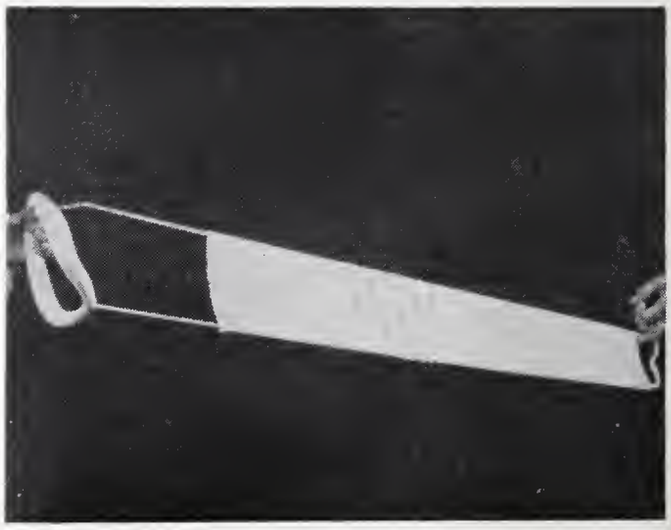

Figure 9
Full Ring Thomas splint with stockingnette.

Figures 10 & 11
Method by which foot and ankle adequately protected so cloth straps can be applied to give traction.

Figure 12
Leg in splint shows how full ring gives counter traction against the groin and ischium with active traction at the ankle.

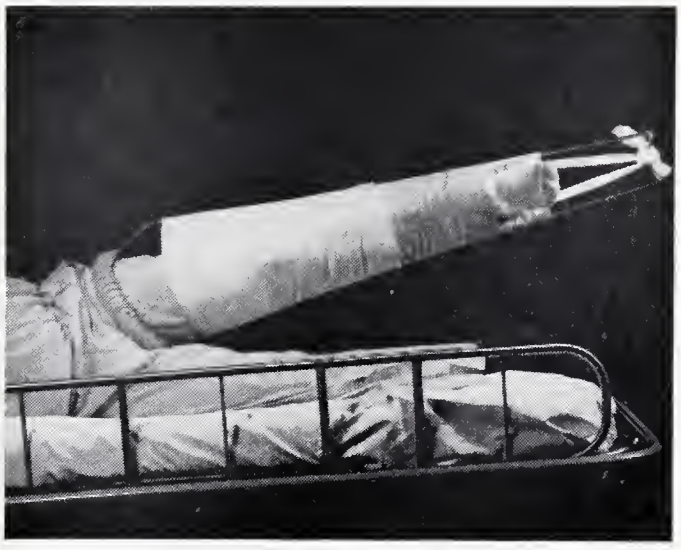

Figure 13
After traction has been applied, entire leg wrapped with ace bandage in order to afford good immobilization. This allows the patient to be moved at random.

Summary

Simple techniques have been demonstrated in which all extremities can be satisfactorily handled on a temporary basis.

For completeness, it should be mentioned that in the past few years air splints have been developed which can do the same job. However, they have their own problem and probably are not as satisfactory as the above splints.

Hypertelorism With Turner Phenotype

J. A. Noonan (Univ of Kentucky Medical Center, Lexington)

Amer J Dis Child 116:373-380 (Oct) 1968

Nineteen patients with multiple congenital anomalies were seen who seem to fit a definite syndrome. All share a rather characteristic similar facies, and 17 were quite short in stature. Although normal secondary sex characteristics eventually develop, puberty is delayed. Mental retardation is frequent but is not a constant finding. All of these patients had congenital heart disease, with valvular pulmonary stenosis present in 17 and a patent ductus arteriosus in 2 patients. The syndrome occurs in both males and females. There is no evidence of a chromosome abnormality in the syndrome, but review of the family history suggests it may be a familial disease. The mode of transmission, however, is uncertain.

SURGERY at the UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE*

*Under the direction of Gilbert Campbell, M.D., Professor of Surgery.

Recurrent Epistaxis and Otorrhagia Following Non-Penetrating Craniofacial Trauma

T. Ahrend, M.D.; D. Miles, M.D.; and S. Flanigan, M.D.*

Birley and Trotter are generally credited with the first description, in 1928, of life endangering epistaxis following closed trauma to the head (2). Since that time only a limited number of other cases have been contributed (1, 3-5, 7, 10-13). Ten of these fall into a group identified by Maurer, Mills and German as a triad of unilateral blindness, epistaxis and orbital fractures (1 & 10). These cases have been fusiform aneurysms exposed in a paranasal sinus. In all there was a concommitant injury to one of the cranial nerves. Congenital aneurysms of the cavernous portion of the internal carotid artery can result in hemorrhage through the nasal passageways (9), but the frequency with which there has been a history of head trauma in this type of epistaxis merits the inquiry.

A recent article by Busby, Slemmons and Miller describes a case of fatal epistaxis via the eustachian tube—the second such case to be reported (3). This communication presents another example of life threatening hemorrhage from the nose and the ear, presumably through the eustachian tube, in which surgical management provided control of the bleeding.

Report of a Case

W. H., a caucasian male born May 28, 1929, presented at the Veterans Administration Hospital Division, Little Rock, Arkansas, August 16, 1966. He had been in an automobile accident and had sustained multiple facial lacerations. He was reportedly unconscious for approximately 10 minutes following the accident and had an amnesia for the event.

The patient was alert and there was no neurological deficit. Blood was seen behind the left tympanic membrane. Skull films were interpreted as normal. There was a history of facial bone injuries in a previous accident in 1964, and the films did show evidence of an old zygomatic fracture on the left. The patient was observed for a week and released.

The second hospitalization occurred nine weeks later on October 25, 1966. The patient complained of weakness. He gave an interval history of episodic pounding in the left ear, followed by a whistling sound, and then a spurting of blood from the left ear and/or nostril. There had been progressive loss of hearing in the left ear. He reported occasional double vision.

The physical examination noted poor control of eye movements, and again blood was seen behind the left tympanic membrane. There was no pulsating exophthalmos and no audible bruit. The patient was seen by the Otolaryngology Service and the left middle ear was drained. Due to reaccumulation of blood, a polyethylene tube was inserted through the tympanic membrane. During observation through succeeding weeks he bled moderately four times, and seemed to continually ooze small amounts of blood from the left ear and the left nostril.

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Skull films were repeated and showed what appeared to be a fracture of the base of the skull involving the left temporal and occipital bone.

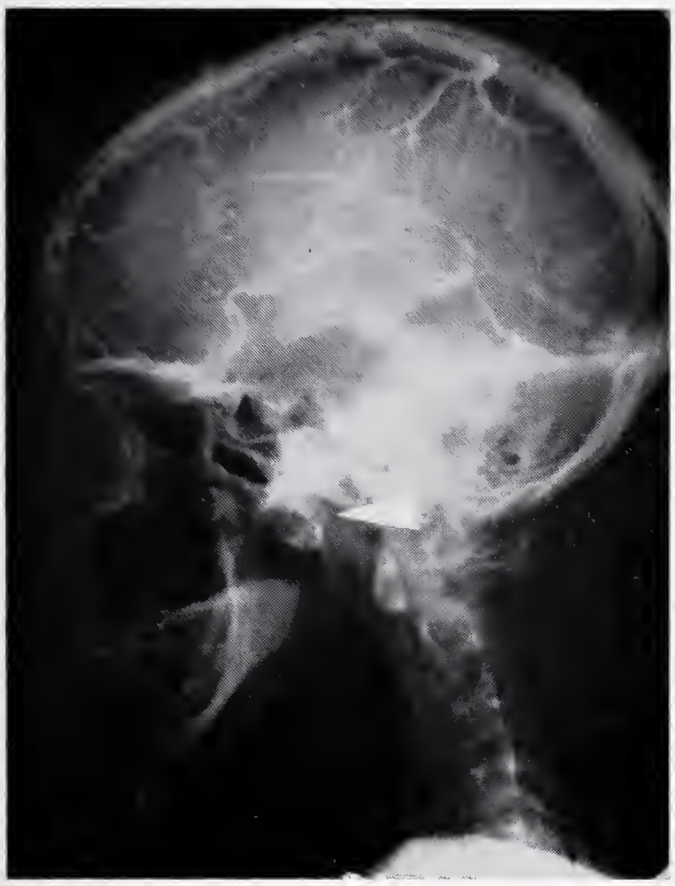


Figure 1

Abnormal collection of blood vessels in the pterygoid fossa visualized in the venous phase and initially suspected as the site of hemorrhaging.

A left carotid angiogram was done. It revealed in the venous phase a collection of irregular vessels medial to the ramus of the left mandible (Figure 1). This was felt to represent a vascular tumor. Without further epistaxis he was discharged with a hemoglobin of 12.7 Gm%.

The third admission occurred on February 5, 1967, approximately six months after his most recent head trauma. He had continued to have episodes of bleeding preceded by a high pitched ringing in his left ear. On the day of admission the patient sneezed and experienced an immediate massive loss of blood from both the nose and left ear, estimated by the family physician at 1000 cc. Despite a unit of whole blood he had orthostatic hypotension on arrival but was not bleeding. His hemoglobin was 8.2 Gm%.

Two days after admission, and after having received four units of whole blood the patient was operated. Exploration of the left pterygoid fossa was done with excision of a vascular tumor which was thought grossly to be an arteriovenous malformation. The left external carotid artery was ligated at the internal maxillary branch. The 7th nerve was identified and preserved, but a left facial paralysis developed postoperatively.

Two days later the patient bled again from the nose and his hemoglobin dropped to 7.4 Gm%. He was in profound shock. Blood was again noted behind the left tympanic membrane. Bilateral carotid and left vertebral arteriograms were done as an emergency. The right carotid and vertebral studies were not abnormal. The left side was considered normal except that it showed the ligation of the maxillary branch of the left external carotid and disappearance of the previously described vascular malformation. The basal, submento-vertex view of that internal carotid artery demonstrated what was *later* interpreted as a dissecting aneurysm of the vessel in the carotid canal of the petrous bone (Figure 2).

The patient was returned to surgery and a ligation of the left external carotid was carried out at the bifurcation. Five days later, after another sneeze, he again began to bleed from his nose. The right external carotid was ligated on the supposition that bleeding was occurring from a sphenopalatine artery through cross circulation. This procedure had no effect on the bleeding, but it did later stop spontaneously. During this period the patient received five units of blood. He again recovered and was ambulatory.

Then, ten days later the patient had a spon-

Figure 2
Submentovertex view of the internal carotid artery in the carotid canal of the petrous bone on the left. The extent of the double lumen is indicated by the arrows from the lateral bony canal into the cavernous portion of the vessel.

taneous epistaxis which stopped only when he reached a shock state. He received three units of blood and responded. A decision was made to explore the floor of the middle fossa through a left temporal craniotomy. The presumptive diagnosis was that of a traumatic arteriovenous fistula, though the angiographic studies had not demonstrated a shunt.

The dissection was difficult. Old fractures were encountered on the floor of the middle fossa. Attempts to elevate the dura were futile and resulted in excessive bleeding. The approach of Echols and Jackson was elected as the procedure of choice (6). A Mayfield clip was placed on the internal carotid as it emerged from below the anterior clinoid. Attention was turned to the neck and the left internal carotid artery was exposed and opened. Strips of muscle from the sternocleidomastoid were introduced into the lumen and threaded up into the siphon and the petrous canal under x-ray control. The strips were tagged with silver clips (Figure 3), after the technique of Jaeger (8).

Postoperatively he had right hemiplegia and aphasia and a third nerve palsy on the left. After the initial postoperative morbidity his course was one of gradual improvement. One year later, he retained residuals of these neurological deficits but could walk and converse. There has been no further epistaxis or otorrhagia.

Comments

The angiographic demonstration of a double lumen in the course of the internal carotid artery is unique. The submentovertex view was included in the angiographic series in the absence of demonstration of an aneurysm or the site of bleeding. The parallel linear radiolucency represents an appearance very similar to that seen in the angiographic demonstration of a dissecting aneurysm of the aorta. It has been pointed out (3) that the intrapetrous portion of the internal carotid artery is a segment in which angiographic interpretation can be confused by the density of that portion of the skull. In this reproduction there is also an adjacent radical of the external carotid system which is superimposed laterally over the course of this portion of the internal carotid. There is,

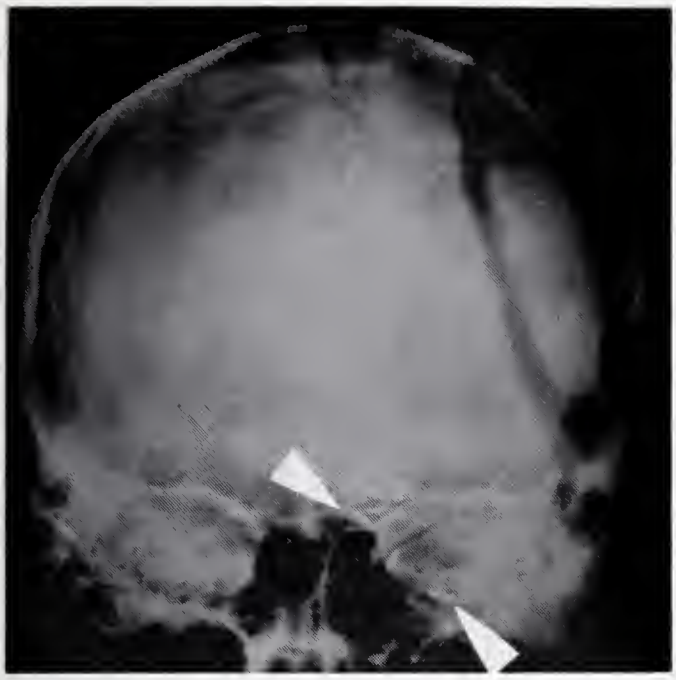
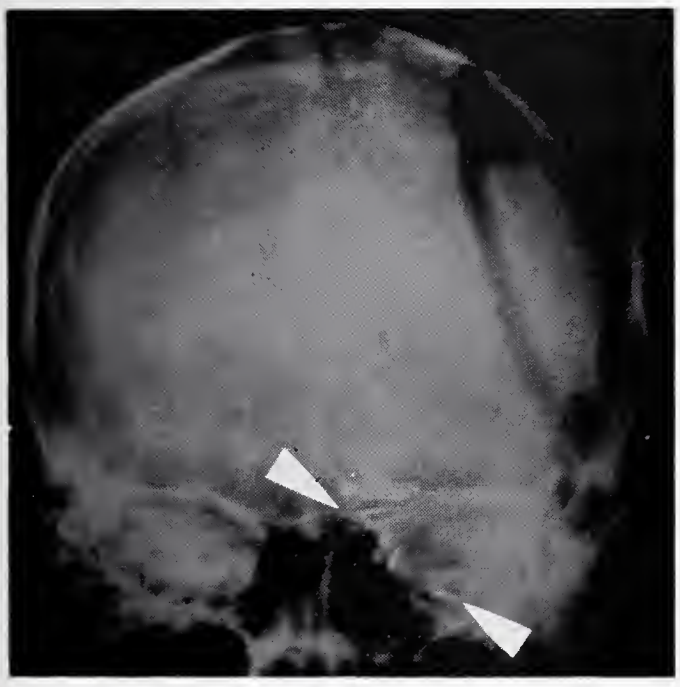


Figure 3

Silver clips along the course of the internal carotid artery from the petrous canal laterally into the area of the siphon.



however, no branch of that system which can be followed into and away from the segment in which the double lumen is appreciated. It is on this count that that possibility is disregarded.

Some fusiform enlargement of this portion of the internal carotid can be occasionally recognized in angiographic studies undertaken for other purposes. The somewhat irregular variation in the caliber of that portion of the vessel in this study is suggestive of a fusiform aneurysmal dilitation. It is not of itself sufficiently striking to be diagnostic. The anatomic proximity of the eustachian tube to this portion of the internal carotid artery and the coincident bleeding from both the ear and nasal passageways are the points most favoring the impression that it is at this site that the trauma to the arterial vascular tree has occurred. This is further supported in the therapeutic efficacy of the intravascular muscle plugs identified by the silver clips visualized in the postoperative x-ray. For an enlightening illustration of the anatomical relationships of these structures in this basal portion of the skull the reader is referred to the article by Busby, et al. (3), and the report by Seftel, et al. (11).

Except for the subjective experience of intermittent double vision this patient had not experienced the severity of cranial nerve involvement which has generally been described with these exsanguinating injuries to the base of the skull. This patient's more complete third nerve paralysis occurred postoperatively, and the effect on the 7th nerve motor functions was appreciated only after the operative procedure in the pterygoid fossa. The hearing deficit was of the sort accompanied by a Weber sign lateralized to the side of the otorrhagia and on this basis was considered a consequence of alteration of conduction of the perception in the middle ear. In view of the care afforded the 7th nerve in the exploration of the pterygoid fossa, and the gradual and progressive loss of the function of that nerve postoperatively, the possibility of an insult to the nerve in its course through the middle ear as a consequence of the hemorrhaging in the ear has also been considered.

The tardy and yet progressive nature of the hemorrhaging was in keeping with the experience described in the other reports. The potential of a fatal outcome in a third or more of these cases sets this problem apart from the usual experience in the more common problems of epistaxis from the radicals of the external carotid system. The history of a moderately severe craniofacial trauma in the recent past weeks or months is enough to raise the question of this otherwise rare entity. Recurrent otorrhagia under these circumstances, even more uncommon, will merit consideration of an internal carotid injury in the petrous portion. Bleeding from the ear in the case reported by Busby, et al. (3), was apparently obviated by a bony compression of the lateral portion of the eustachian canal by the fracture.

Summary

At the expense of an incomplete recovery from a right hemiparesis and dysphasia, and a left third nerve palsy, the case reported represents a succes-

ful surgical management of a recurring, near fatal hemorrhaging from the left internal carotid artery into the region of the adjacent eustachian tube. It is exceedingly uncommon that the bleeding has been manifest both from the nasal passageways and the ear. The significance of the history of craniofacial trauma is considered foremost in importance in dealing with this sort of extreme blood loss.

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Column-Chromatography of Paraproteins on Ion-Exchangers

M. Knedel and A. Fateh-Moghadam (Medizinische Klinik der Universität, Munich, West Germany)

Klin Wschr 46:1078-1092 (Oct 15) 1968

Column chromatography with DEAE-cellulose and DEAE-Sephadex has shown the best results in protein determination. Using the continuous gradient-elution chromatography 65 sera were separated (25 normal sera and 40 cases of paraproteinemia, 26 γG, 7 γA, and 7 γM). The elution chromatogram of the normal sera was always analogous. The obtained protein fractions showed the same slightly differing proportions as protein spectra of normal sera. The first protein fraction to be eluted is the γG-globulin, a sharp and well-distinguished peak. In 22 of 26 cases of γG-paraprotein, the paraprotein was eluted together with normal γG-globulin in the first peak and could not be separated. In the group of γA-paraproteinemias, ten of 11 chromatograms had the same elution diagram with a pathological protein fraction in the post-albumin zone. The γM-proteinemias (macroglobulinemias) always had a typical pattern with identification of the paraprotein at the end of the elution chromatogram. Continuous gradient-elution chromatography can be used as a determinant in the step-wise isolation of paraproteins.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 49 SEX: Female BUILD: Medium BLOOD PRESSURE 110/80

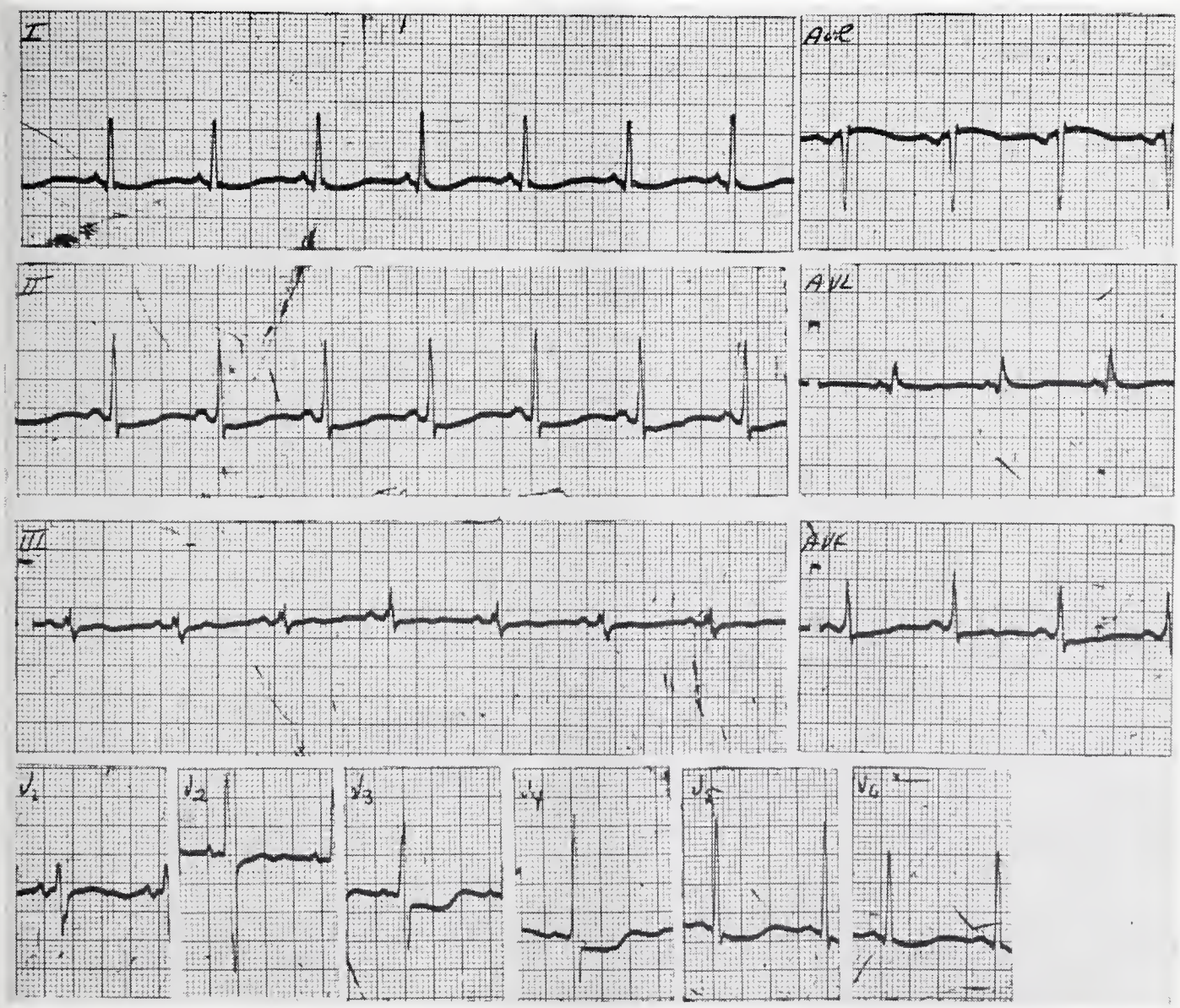
CARDIAC DIAGNOSIS: None

OTHER DIAGNOSES: Blastomycosis, hypokalemia

MEDICATION: None

HISTORY: Weakness, poor muscle control

See Answer on page 347

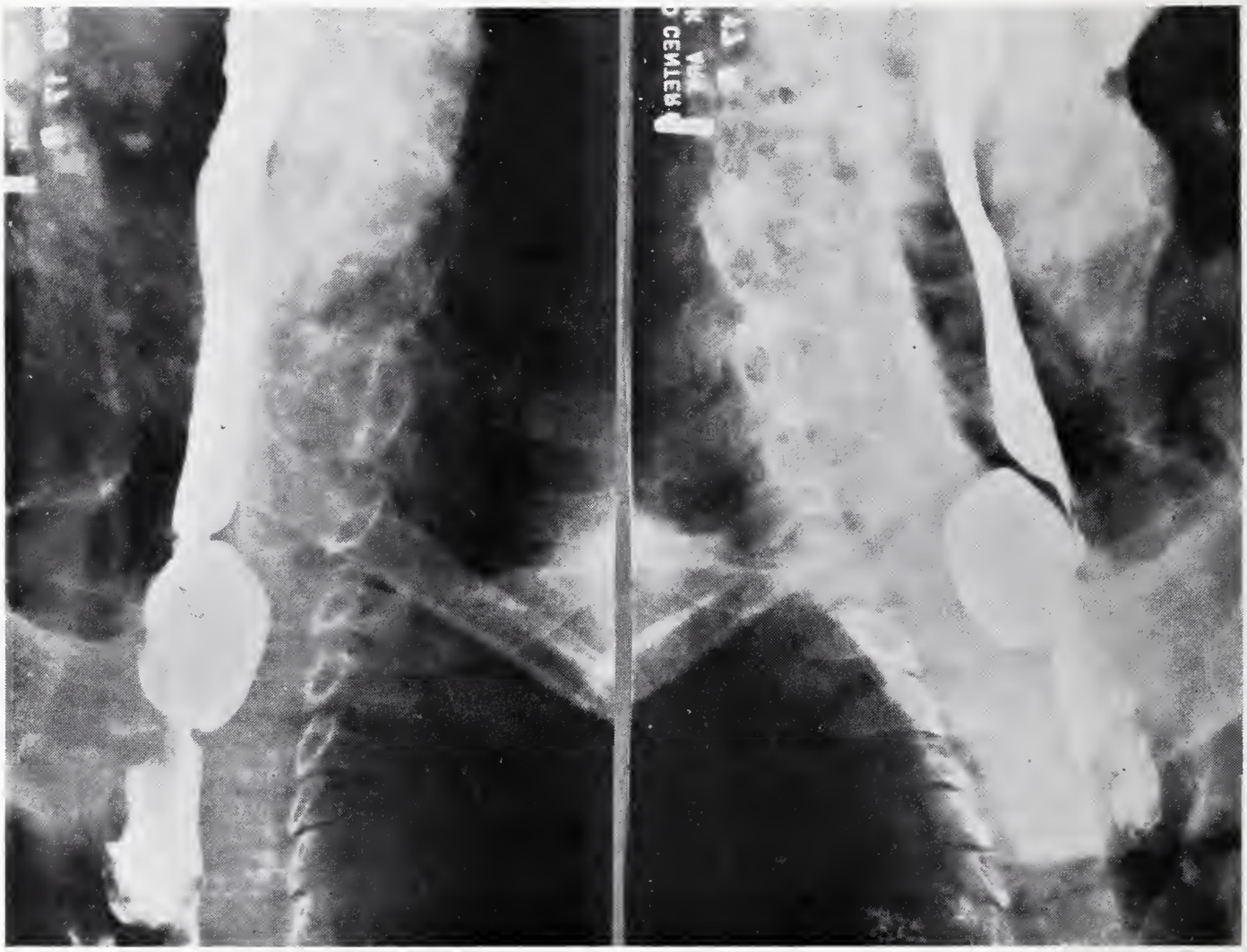


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

See Answer on page 347



HISTORY: This 69-year-old man had a five-month history of increasing dysphagia.

PH

PUBLIC HEALTH AT A GLANCE

Available Services in Nutrition and Dietetics

Did you know that there is dietary counseling available to your patients from Health Department nutritionists? These nutritionists have graduate training in nutrition and dietetics and are qualified to counsel on normal or therapeutic nutrition. This is one of many free-of-charge services in nutrition and dietetics available to communities through their local health units. This article will describe briefly who the public health nutritionists are, what they do, where they are in the state and how you can get in touch with them.

The Nutrition Service staff of the State Department of Health is a branch of the Maternal and Child Health Division. In most state health departments nutrition services were originated many years ago to meet the nutrition needs of the mother and child specifically. In Arkansas nutrition services are available to help families with problems in either normal or therapeutic nutrition. Some of the specific services will be described briefly.

The nutrition staff at this time includes one Chief Nutritionist, three full-time and one half-time district nutritionists serving five to ten counties each.

Nutritionists serve as special consultants to public health nurses. They usually see patients with special problems in normal or modified diets in health department clinics or on home visits with the Public Health Nurse at her request. Consultation to patients in all socioeconomic groups is available from the nutritionist when nursing services are not required by the patients. Many physicians are referring their private patients for help with special diet problems. Information on how to get in touch with a community nutritionist will be given at the end of this article. It is not unusual for a nutritionist to receive a request from the patient of a private physician for help with interpreting a special diet. A Health Department nutritionist always checks with a patient's physician before giving consultation to any patient requesting dietary help.

The need of a diabetic or ulcer patient for professional dietary consultation may be readily apparent to you. Sometimes other patients needing help may have less obvious problems. Many mothers need help in planning nourishing, appetizing, economical meals even when no modified diets restrict the eating pattern of any family member. Any family may have a preschooler, a teenager or a senior citizen who is on a normal diet but still has an eating problem. Just getting the dollars available to do a good job of meeting the nutrient needs of the family is a problem to many mothers. Evaluating magazine articles or popular books on foods and dieting can be a challenge to both professional and lay people which might be better met with the help of a nutritionist. Consultation in any of these areas is available from nutrition staff members on request.

District nutritionists also serve the community in other ways. Some examples are in serving as consultants to day care programs for children, public and private schools, and any other groups desiring help with group feeding situations. Many lay groups such as TOPS, Girl Scouts, Parent Teacher Associations, civic groups, and others request help. Staff members are always pleased to have the opportunity to discuss nutrition with organized groups wishing more information in any area of their specialty.

The Arkansas Diet Manual which is available to all physicians in the state free of charge, can be obtained by calling or writing your local health unit or Nutrition Services, MCH Division, State Department of Health, Little Rock. Modified diet instruction sheets for the patient's use are also available free to hospitals and physicians from the same source. The manual was written by a nutrition service staff member with the cooperation of the Arkansas Medical Society and the

NUTRITION SERVICE STAFF

Chief Nutritionist: Mrs. Patricia Raines, Arkansas State Department of Health

Sr. Nutritionist: ■ Mrs. Mary Bell, Little Rock City Health Department P/T

▲ Mrs. Carolyn Atkinson, North Little Rock Health Department

DISTRICT NUTRITIONISTS:

○ Mrs. Kathleen Brown, Jefferson County Health Unit, Pine Bluff

⬢ Mrs. Jo Jackson, Drew County Health Unit, Monticello P/T

● Mrs. Ocrie Lambert, Cleburne County Health Unit, Heber Springs

Arkansas Dietetic Association. It is endorsed by the Arkansas Hospital Association, the State Nurses Association and the University of Arkansas School of Medicine.

District nutrition staff members and their headquarters offices are listed with the map of nutrition services on this page. Nutritionists usually visit the counties in their districts at least once a month. You may contact them by writing or calling the Medical Officer or Public Health Nurse in your County Health Department. Contact the Little Rock or North Little Rock City Health Departments if you live in either of these metropolitan areas. If you live in a county not regularly served by a nutritionist, you may still call on your local health department. Consultation is available to all health departments staffs through the state office of the Nutrition Service.

EDITORIAL

Cerebral Ischemia

Alfred Kahn, Jr., M.D.

Clinical medicine has not come up with a consistently worthwhile program of treatment for cerebral ischemia.

In the first place, the diagnosis of cerebral ischemia was formerly made on purely neurologic symptoms and signs, and this is now known to be notoriously unreliable. Aphasia with right sided weakness in a right handed person used to be invariably ascribed to a specific branch of the middle cerebral arteriography. It soon became apparent that the specific syndromes were not always the result of arterial insufficiency or occlusion of a specific artery. For example, stroke patterns were often the result of extracranial carotid artery insufficiency. Although this has led to renewed hope of surgical attacks on the occluded extracranial carotid system, the injection of radiopaque dyes to make the diagnosis carries a definite risk of aggravating an already critical condition. One by-product of carotid arteriography is the further proof of the previously known fact that many ischemic brain disorders, as strokes, are not the result of a complete cerebral or extracerebral artery occlusion, but the result of a markedly diminished blood supply in a patent, partially occluded blood vessel. The brain damage in partially occluded vessels may be transient.

In an effort to detect transient ischemia, Langton, Moxon, Riddoch, Westhead, and Woolf (Lancet, Vol. II, for 1967, page 278, August 5, 1967) have examined creatine kinase taken from the jugular bulb. They state that creatine kinase is elevated in peripheral blood in the presence of necrotic gliomas, after status epilepticus, after cerebral ischemia, etc.; since these conditions represented dramatic serious disorders, they took venous blood from the nearest convenient source in hopes that minor fluctuations of creatine kinase could be detected, which if sought in the peripheral blood, would be too small to detect. They were able to show an elevated creatine kinase, but their first blood samples were unreliable apparently due to the trauma of the needle. Subsequent specimens showing an elevation of creatine kinase do seem to act as an indicator of cerebral ischemia and brain tumor. This work is as yet unsubstantiated by a definitive series using appropriate precautions against contamination by muscle creatine kinase.

If the cerebral ischemia is severe and arteriography indicates an extracranial lesion, vascular surgery is often recommended and performed. Despite excellent surgical technique, the clinical improvement following this type of surgery cannot reliably be predicted. In an effort to understand this situation better, O'Brien, Veall, Luck, and Irvine have reported on "Cerebral-cortex perfusion-rates in extracranial cerebrovascular disease and the effects of operation." They studied 36 male and 4 female patients by single vessel arteriograph by either percutaneous puncture or artial catheterization; cerebral cortex perfusion studies were made simultaneously on both hemispheres using radioactive xenon inhalation. It was interesting that from studies, it was demonstrated that "clinically and radiologically successful operations have no consistent effect on cortex perfusion rates." A second rather surprising finding was that the presence of severe extracranial vascular lesions do not necessarily reduce the cortex perfusion rate and actually in some cases the cortex perfusion rate was higher on the side of the grossly diseased vessel than on the opposite side, which was supplied by a relatively normal artery; the authors attribute this to the excellent anastomosis distal to the lesion. Also using this

technique, these investigators found "no correlation between asymmetry in cortex, perfusion, and clinical lateralization of the lesion, presumably because small lesions in the brain may cause pronounced neurological signs without detectable changes in the blood flow." The conventional indications for surgery in extracranial disease, which are: (1) to relieve stenosis, (2) to remove a source of microemboli, and (3) to avoid significant future stenosis, should be viewed with some degree of caution.

The studies on circulation of the brain are eloquent testimony that empiric conclusions in medicine are often wrong—for example, removing a stenotic segment of vessel would seemingly increase perfusion on the ipsilateral side but by appropriate studies, it can be proved that this is not so. The day of arm chair research in medicine is long since past.

The Clinic in the Year 2000

B. T. Eiduson (941 Stonehill, Los Angeles)

Arch Gen Psychiat 19:385-393 (Oct) 1968

The information from which planning and prediction in mental health should rationally proceed has not yet been accumulated in child psychiatry. Predictive trends discussed in this paper are based on an analysis of the course and factors influencing the development of the outpatient clinic as a social institution. Extrapolating from the features that have made the clinic model successful, it is predicted that clinics in the year 2000 will become more diversified in program, staffing patterns, and populations, with the diversification growing out of the context in which clinical services are developed. Diversity in organization and services will be maximized, with interfacing provided by computer technology so that existing problems of overlap and lack of interaction among services will be sharply eradicated. Further practice will be radically influenced by computerized information in psychiatry. Methods of data collection and assimilation will permit the large networks of information from related disciplines that influence psychiatric practice to be included in future decision making, and encourage the production of new basic research data in psychiatry.

Studies of Fallout 137-Cs in Canadian North

P. M. Bird (Dept of National Health and Welfare, Brookfield Rd, Ottawa)

Arch Environ Health 17:631-638 (Oct) 1968

A special study of fallout 137-Cs in the Canadian North showed that relatively high concentrations occur in caribou and reindeer and that a geographical and seasonal pattern is probable in these levels. Levels in humans are highest in those who consume caribou meat frequently and average levels correspond to radiation doses well within the dose limit recommended for individual members of the population. Selected population groups (eg, caribou eaters) can be much more significently exposed than the average exposure for the rest of the population. Further studies of the relationship between urinary 137-Cs concentrations and body burdens will make interpretation of the urinary 137-Cs surveillance data more useful. Large-scale resumption of atmospheric weapons testing would make further study important. There is no clearly established downward trend in levels despite the absence of significant atmospheric weapons testing for several years. Also, the relatively high 137-Cs levels which have been observed provide an excellent opportunity for carrying out investigations of the movement of this fission product through the food chain into man.

MEDICINE IN THE NEWS

Accounting Requested on Emergency Appeals for Blood

Dr. Nils C. Pehrson, President of the Arkansas Society of Pathologists, advises that the following motion was adopted by that group at a meeting on December 12, 1968. He requested that this motion be published in the Journal of the Arkansas Medical Society.

"In the public interest, and to conserve a valuable resource, so move that whenever a public appeal is made by a blood bank (physician directed), via any of the communications media, an accounting be made of the response to this appeal in number of units received and disposition of the number of units either as whole units or the fractions thereof. This accounting should be directed within one month of completion of the appeal, to the county medical society(ies) in which the appeal was made as well as to the county medical society, home of the originating blood bank.

"This motion is intended to cover only emergency appeals for specific purposes and not regular recruitment."

RELATIONSHIP BETWEEN NUMBER OF APPLICATIONS, MCAT PERFORMANCE AND ADMISSION TO MEDICAL SCHOOLS

The November *Datagram* indicated that the mean number of schools to which medical school applicants apply has increased steadily from 3.7 for the 1961-62 entering class to 5.0 for 1967-68. Thus the total number of applications submitted increased at a much faster rate than the total number of applicants. Figure 1 illustrates this phenomenon. For admittance to the 1961-62 first year class, 14,381 applicants submitted 53,834 applications, whereas for 1967-68, 18,724 applicants submitted 93,332 applications. Among those 1967-68 applicants who took the MCAT (97.5 per cent of all applicants), approximately three-fourths applied to more than one school.

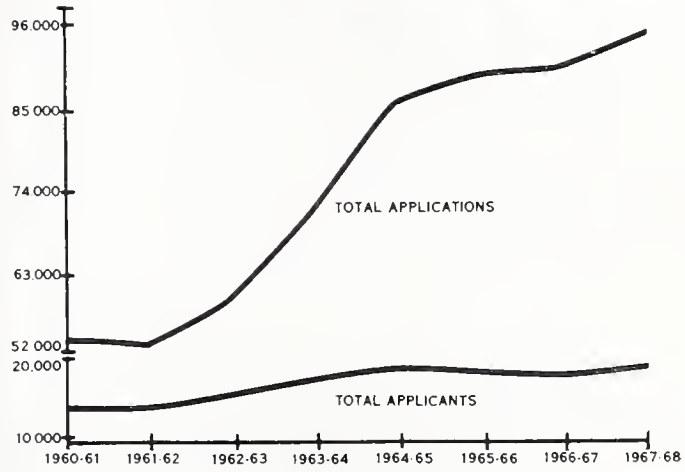


FIGURE 1
Comparative increase in numbers of applicants and applications between 1960-61 and 1967-68.

Figure 2 shows that for applicants to the 1967-68 class, there was a direct relationship between number of schools applied to and performance on the Science portion of the Medical College Admission Test (MCAT). This relationship held through a total of 8 applications submitted. Similar figures for the other MCAT subtests would show similar results. It should be noted that Figure 2 demonstrates a general relationship based on *mean* scores. Within each category of number of applications, MCAT performance varies widely, with some high scorers submitting only 1 application and some low scorers filing multiple applications. Of course, no cause-effect relationship can be inferred.

Figure 3 shows that, at 3 separate MCAT science score levels (below 500, 500-599, 600 and above), the proportion of medical school applicants accepted for enrollment increased as the number of applications filed increased—up to 6 or 7 applications. Above 7 applications the percentage of acceptances leveled off. The increase in acceptances was as great among those whose scores were 600 or above as it was among those who scored between 500 and 599. But regardless of score level, it would appear that the more schools an applicant applied to (up to about 7) the better were his chances of being accepted by one of them.

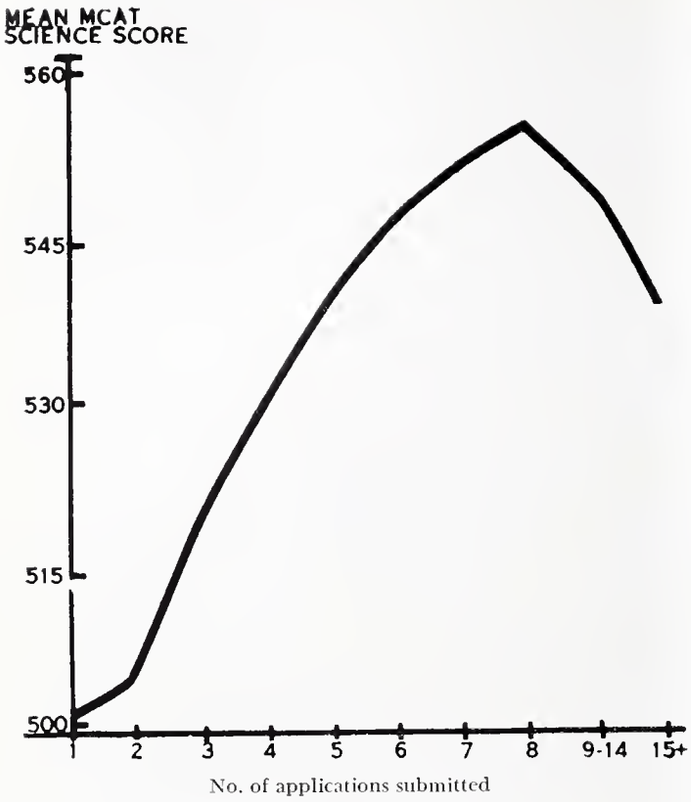


FIGURE 2

Relationship between mean MCAT science scores and number of applications submitted, 1967-68.

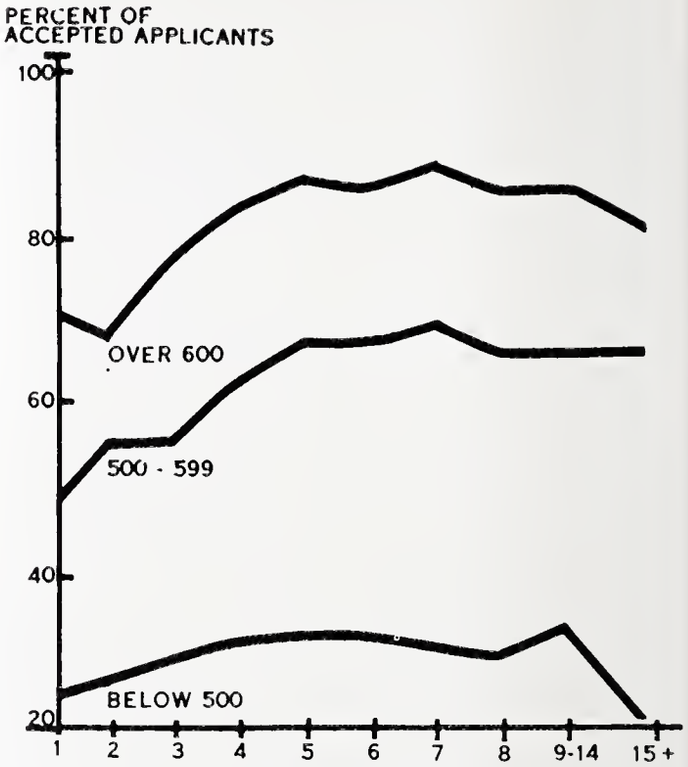


FIGURE 3

Applications submitted and per cent of 1967-68 applicants accepted, by level of MCAT science score.

The average number of applications submitted per applicant is likely to continue to increase in future years. A wider choice of medical schools by applicants and a fuller choice of applicants by medical schools undoubtedly are desirable objectives for medical education, but the burden imposed upon applicants, pre-medical advisors and admission officers can be expected to increase proportionally. A promising solution to this rapidly worsening problem is the AAMC-sponsored Centralized Application Service, now in its pilot study phase, and recently renamed the American Medical College Application Service (AMCAS).

The information from which figures 2 and 3 were derived is presented in Table 1.

TABLE 1

MCAT SCIENCE PERFORMANCE BY NUMBER OF APPLICATIONS SUBMITTED, 1967-68

	All Applicants				Accepted Applicants		
No. of Applications Submitted	No.	Per Cent of Total	Cumulative Per Cent	Mean MCAT Science Scores	No.	Per Cent Accepted	Mean MCAT Science Scores
1	4,428	24	24	502	1,762	40	545
2	1,993	11	35	505	869	44	543
3	1,920	10	45	521	944	49	556
4	1,832	10	55	530	1,037	57	564
5	1,595	9	64	540	976	61	573
6	1,419	8	72	548	893	63	578
7	1,041	6	78	552	686	66	579
8	862	5	83	555	542	63	586
9 – 14	2,415	13	96	551	1,540	64	578
15+	751	4	100	538	427	57	570
Total	18,256	100		527	9,676	53	565

Division of Educational Measurement and Research and Division of Student Affairs

THE MONTH IN WASHINGTON

Washington, D. C.—The incoming Administration work on a health program was started with President-elect Richard Nixon's appointment of John Dunlop, a Harvard University professor, to head a special task force.

Dunlop, 54, is a prominent economist and an expert in the manpower field. He has been a frequent advisor to the federal government since 1948.

In a letter to employees of the Department of Health, Education and Welfare, Secretary Wilbur J. Cohen, who will return to teaching at the University of Michigan, listed 13 health goals for the 1970's. He previously had said that his teaching position would leave him time to work for new and expanded health programs.

Most of the goals are non-controversial, and Cohen did not elaborate on details of implementation where controversy arises. The goals:

—Continued expansion of medical research and more rapid dissemination of new knowledge to prevent and cure illness.

—Elimination of economic barriers to medical care, through comprehensive health insurance and other public and private programs.

—Major reduction in infant mortality and early childhood diseases.

—Elimination of malnutrition.

—Improvement in the organization and delivery of medical care, with continued emphasis on high quality.

—Widespread transplantation of human organs and development of artificial organs.

—Expanded prevention and improved chances of recovery from heart disease, stroke, and cancer.

—Increase of health manpower and better use of professional skills.

—Elimination of large mental institutions and expansion of community mental health centers accessible to all.

—Family planning services available to everyone.

—Improvement in the quality of the environment, with major reduction in air and water pollution.

—Reduction of alcoholism, drug addiction, mental illness and mental retardation, and accidents.

—Elimination of smallpox, diphtheria, polio, whooping cough, and measles.

* * * *

Developments in the drug field include starts on tests of an old drug in treatment of pneumonia and a new one for Parkinson's disease.

The National Institutes of Health started a widespread test of a polyvalent pneumoncoccal vaccine that was discarded 20 years ago with the entrance of antibiotics. Edwin M. Lerner, M.D., coordinator of the test program, said it had been demonstrated that persons die of pneumonia because of early stage damage and that antibiotics have not been a cure-all. The old vaccine, manufactured by E. R. Squibb and Sons, was licensed and found effective in 1948, but was taken off the market in 1952 because of lack of sales.

"Penicillin was the cure-all in those days," Dr. Lerner said. "It was felt that there was no need to vaccinate people. After all, we thought we could cure them."

The Public Health Service announced a program to test an experimental drug in treatment of Parkinson's disease. Robert Q. Marston, M.D., Director of the National Institutes of Health, said the drug, L-DOPA, may help "up to 75 percent of patients." But he cautioned it has "serious and unpleasant side effects" which must be carefully checked.

Other developments in the drug field included:

—The Pharmaceutical Manufacturers Association disputed the finding of an HEW Task Force on Drugs that a $41.7 million saving could have been obtained by use of generic instead of brand name products in 67 or the 409 prescription drugs used most often by elderly persons. C. Joseph Stetler, PMA president, said the claim was not documented and was based "on the unproven assumption that prescriptions written by generic name cost substantially less."

—A Food and Drug Administration Advisory Committee said that existing data on whether birth control pills can cause cancer of the cervix is still inconclusive. The Advisory Committee on Obstetrics and Gynecology repeated the recommendation of the World Health Organization that all women using birth control pills undergo six-to-12 month medical examinations.

—The government has drawn up a national drug system to permit computerized processing of drug data. The code is designed to provide the needed common language in which to communicate rapidly and accurately essential information about drugs. The code was drawn up by HEW and the Drug Trade Conference, which represents drug manufacturers and distributors.

Regional medical programs, a majority involv-

ing continuing education of physicians, are now underway in 24 areas, with 261 separate projects being carried out, according to a government report.

Thirty-one regions have not yet embarked on specific programs.

States and regions with the most listed projects to date are Tennessee (mid-South), 27; Missouri, 25; Texas, 24; South Carolina, 16; Intermountain (Utah, Wyoming, Montana, Idaho, Nevada), 16; Michigan, 15; Georgia, 14; Kansas, 14; Washington-Alaska, 4; Albany (N. Y.), 10; Memphis (Tenn.), 10; California, 9; Rochester (N. Y.), 9; and Oregon, 7.

* * * *

The nation's largest mental institution, Saint Elizabeth Hospital, Washington, D. C., will be converted to a model of modern mental health services, training, and research by the National Institute of Mental Health.

The National Center for Mental Health Services, training, and research will be headed by Sherman N. Kieffer, M.D., Assistant Surgeon General of the Public Health Services.

The new national center will have three divisions. One is the Saint Elizabeth Hospital—Division of Clinical and Community Services. In collaboration with the D. C. Department of Health, this division will operate the area D Community Mental Health Center which includes much of Southeast Washington. It will also provide active treatment, care and rehabilitation services for the beneficiaries of Saint Elizabeth Hospital.

A division of intramural training, will administer an expanded institute program to train new types of auxiliary mental health manpower and to test new training techniques.

The third division will be responsible for the development of new approaches in clinical research.

* * * *

A deadly brain and skull defect was found in four of 14 aborted fetuses whose mothers used LSD, a George Washington University Geneticist reported.

Dr. Cecil B. Jacobson, reporting to a District of Columbia Medical Society meeting, said he also found "moderate" to "severe" flaws in chromosomes of "at least 50 per cent" of 75 female LSD users. The flaws are in genetic material and could impair offspring, he said.

Jacobson and his associates said they found their subjects by advertising in an underground newspaper for pregnant LSD users, "No Questions Asked." Among the group he has studied, he said, there were 22 normal births and 35 abortions, only 14 of which produced fetuses intact enough for study.

Four of the 14 had a disease called "exencephaly" which normally shows in less than one-half of one per cent of babies, he said. It is fatal, he said. One characteristic is that the brain is outside the skull.

Eighty per cent of the women studied were unmarried, Jacobson's aides said. Some had taken as little as one dose of LSD and others had taken it numerous times.

* * * *

Man is threatened with self-destruction because he has damaged, ignored and contaminated "the earth that gives him life," according to a federal government official.

Charles C. Johnson, Jr., Administrator of the newly created Consumer Protection and Environmental Health Service in the Department of Health, Education and Welfare, said the threat—from pollution, unsafe food, drugs, water and chemical additives to food—among other things—is increasing each year.

Johnson spoke at a symposium on Human Ecology. Ecology is the branch of science dealing with the relationship between people and their environment.

"With regard to the physical environment, we have reached, or at the very least are rapidly approaching, a critical point," Johnson told the gathering of scientists, lawyers, sociologists, engineers and other specialists.

"Every year pollution gets worse, rather than better; the threat from unsafe food, drugs, water and a variety of consumer products is increasing; the quality of American life, particularly urban life, is deteriorating in a morass of environmental problems so complex as to appear almost beyond remedy," Johnson said.

Usual, Customary and Reasonable Charge Program, Arkansas Blue Cross-Blue Shield

The Arkansas Medical Society has requested and assisted Arkansas Blue Cross and Blue Shield in developing some private health insurance programs which make payment to physicians based on usual, customary, and reasonable charges.

Outlined below are the recommendations and conditions for operating such programs which were approved by the House of Delegates on

December 15, 1968. The Confidential Register of Professional Charges is being returned to each physician. These charges were used in determining the prevailing ranges for all procedures. Physicians who submitted charged will be notified if any charges are outside the prevailing ranges. Under such circumstances it is hoped that many physicians will consider accepting charges which will fall within the recently updated ranges.

The following basic elements were considered in developing these new programs:

1. Fee payments must be based on the individual physician's usual charges to his patients (from surveys or internal statistical data).
2. To be eligible for full payment, the physician's usual charges may not exceed the range of charges for similar services under similar circumstances in the same medical market area.
3. Where a Plan does not have participating agreements with physicians, there must exist some mechanism for negotiation with all physicians whereby the Plan's payment is accepted as "payment-in-full" for covered services—to the end that there will be no charge to the subscriber for the covered service.
4. The Plan must have an effective utilization review mechanism—it may involve cooperation with medical societies or may be internal—but it must be capable of being effective.
5. The Plan and the Medical Society must have some mechanism to assure that undue escalation in the costs of professional services does not occur.

Accordingly, the following recommendations were made to the House of Delegates:

1. Blue Cross-Blue Shield felt that it was not necessary to rely on individual signed participating agreements to implement these programs. It seemed more realistic to establish some general agreement about the conditions and supervision of the program through negotiations with designated groups and committees appointed by the Arkansas Medical Society; therefore, it was recommended that all physicians who are practicing in Arkansas be considered as participating in the program.
2. It was further recommended that the Medical Society agree to establish adequate review mechanisms which would protect the subscriber from bearing the cost of unusual charges that could not be justified by medical review. The 21-Physician Committee of your Society has already established review mechanisms.
3. It was further recommended that payment to physicians who have not submitted recent charge information would be based on customary charges within the updated prevailing ranges and from historical charge data.
4. The following procedure would be used in the payment of physician's claims under this program:
   A. Payment would be automatically made when the physician's charge is usual and within the prevailing range.
   B. If the physician's charge is outside the prevailing range or different from his usual charge, then payment would be made when the Internal Medical Staff of Blue Cross-Blue Shield and/or Medical Society Review Committees reviewed the case and agreed that the charge was medically justified.
   C. If a physician's claim carried an unusual fee and the Medical Society Review Committee agreed that the charge was unreasonable, a reasonable payment would be made to the physician based on the opinions of the medical review.
   D. If a physician disagrees and takes issue with the Plan and Medical Society review, the Medical Society should then stand ready to support the Plan's action in defending the subscriber from any additional charges.
5. The mechanism for negotiation with all physicians, whereby the Plan's payment is accepted as "payment-in-full", will rest very heavily on review committees which are thoroughly representative of organized medicine and practicing physicians within the State. The decisions of these committees should substantially influence the payment of charges and acceptance of fees by physicians. And, unless their decisions are contradictory to Board policy, they should be final and binding with regard to pay-

ment of charges and acceptance of fees by physicians.

6. The agreement with the Medical Society should make provision for a physician to revise his professional charges. If the revision of charges falls within the prevailing range, it would become effective ninety days after received by the Plan. If the charge exceeds prevailing range, it would be recorded and be included in updating ranges. These ranges will be updated at least annually.
7. If a physician prefers to collect his fees from the patient and will provide the patient a completed claim form, Blue Shield would reimburse the patient 100% of the usual, reasonable, and customary charge.

These recommendations were greatly influenced by trends in providing more adequate health care insurance and by conversations with the Arkansas Medical Society leadership. Arkansas Blue Cross-Blue Shield agrees with the Medical Society that organized medicine must negotiate for its members and play the major role in supervising and reviewing matters which require professional judgment and decisions. The success of these programs rests very heavily on the Medical Society's active participation and support.

Minutes of Meeting of the Council of the Arkansas Medical Society

The Council of the Arkansas Medical Society met at 11:00 A.M. on Sunday, December 15, 1968, at the Marion Hotel in Little Rock. Present were: Townsend, Thomas, Shuffield, Fowler, Hayes, Saltzman, Raney, Fairley, Edwards, Gray, Bell, Wynne, Duzan, Kemp, Kennedy, P. Kolb, Morrison, Applegate, Kirby, Long, Koenig, Johnston, Whittaker, Verser, Snodgrass, Hyatt, E. Smith, J. Kolb, Norton, Purcell Smith, Amail Chudy, Jim McKenzie, Forney G. Holt, Carl Wilson, R. A. Burger, Frank Burton, Winston K. Shorey, B. J. Jordan, James K. Patrick, George Mitchell, Martin Heidgen, W. A. Ross, Chalmers Pool, John P. Price, A. C. Bradford, Lee Parker, M. D. McClain, Alfred Kahn, John Herron, L. E. Drewery, Mr. Art Seeds, Mr. Eugene Warren and Mr. Paul C. Schaefer.

The Council transacted business as follows:

I. Upon the motion of Saltzman and Applegate, approved a resolution pledging the Society to continue its efforts to insure that all areas of the State have the services of physicians and that an adequate number of general practitioners or family physicians are trained.

II. Upon the motion of Saltzman and Gray, the Council approved a Rural Accident Prevention Program, including the adoption of a slow moving emblem. The program will be recommended to the public and to the State Legislature.

III. Dr. Alfred Kahn, as chairman of the Student AMA Liaison Committee, reported on his meeting with Mr. Charles Nolan, president of the Arkansas Chapter of Student AMA. Dr. Kahn advised the Council of the interest of Mr. Nolan in medical organization and his desire to work with the Medical Society. The Council agreed that Mr. Nolan's efforts were worthy of recognition.

IV. Chairman Townsend introduced Mr. Art Seeds to the Council as the new field representative from AMA.

V. Upon the motion of Payton Kolb and Koenig, the Council voted to pay ten cents a mile travel expense for all Executive Committee travel.

VI. Dr. James Patrick reported for the Postgraduate Education Committee that the committee recommended that the Council reconsider its recent action in withdrawing from a regional medical program of postgraduate education and submitted a copy of a plan to be distributed to members of the Council for its consideration.

VII. Dr. James Kolb reported as an Arkansas delegate to the AMA that he had investigated the discharge of Dr. F. J. L. Blasingame as executive vice president of AMA. Dr. Kolb's remarks revealed a thorough and fact-seeking investigation. His explanation of reasons for the upheaval in AMA organization was accepted by the Council.

Approved: T. E. Townsend, M.D.
Chairman of the Council

Meeting of the House of Delegates of the Arkansas Medical Society

Dr. J. P. Price, Speaker of the House of Delegates, called the meeting to order at 3:10 P.M. The invocation was given by Dr. James Kolb, Sr.

The following delegates, officers, councilors, members of the Society, guests and staff were among those present:
Doctors Lee Parker, James Bethel, Guy Farris, Carl Williams, Asa Crow, M. R. Springer, Frank Padberg, John McCollough Smith, Bill G. Floyd, L. G. Pillstrom, R. H. McCollum, Gilbert O. Dean, Roy Millard, J. W. Murry, T. J. Smith, Wm. B. Stanton, George Peeples, W. A. Hudson, John Delamore, Gerald Teasley, Robert Watson, John Guenthner, M. C. Edds, James G. Stuckey, G. A. Sexton, G. Thomas Jansen, A. C. Bradford, V. B. Smith, H. Blake Crow, John Hall, Carl Nash, John Trieschmann, J. D. Harbison, W. M. Wells, W. R. Mashburn, Forney G. Holt, Duane Jones, William S. Orr, James K. Patrick, Ralph Joseph, J. E. Beasley, R. L. Chrestman, George Mitchell, Harry Hayes, L. A. Whittaker, C. Lewis Hyatt, Stanley Applegate, Charles Henry, A. S. Koenig, George Wynne, Wm. A. Snodgrass, H. W. Thomas, C. R. Ellis, Karlton Kemp, Ben Saltzman, Hugh Edwards, Ross Fowler, H. V. Kirby, L. J. Pat Bell, T. Duel Brown, Eldon Fairley, B. P. Raney, James Kolb, K. R. Duzan, Joseph Norton, J. W. Kennedy, C. C. Long, Joe Verser, Amail Chudy, T. E. Townsend, Richard Martin, E. N. McCollum, Nils Pehrson, Morrison Henry, James W. Branch, M. H. Harris, Ronald Lewis, Henry Hearnsberger, L. E. Drewery, Garnett Leonard, John Herron, Mr. Sam Butler, Mr. Walker Tucker, Mr. H. T. Gardner, Mr. Paul Peeples, Mr. Storm Whaley, Mr. Paul Harris, Mr. Arthur W. Seeds, Mr. Eugene R. Warren, Mr. Schaefer and Miss Richmond.

The Speaker noted that 37 delegates were registered for the meeting and that a majority of the delegates registered constitutes a quorum. He declared a quorum present.

Speaker Price called on the Society's Legislative Counsel, Mr. Eugene R. Warren, to discuss legislation expected during the 1969 session of the Legislature. Mr. Warren briefly explained several legislative proposals and requested Society approval of them. The proposals were:

1. Abortion Law

The Society has voted not to sponsor a bill to legalize abortions but to give support to such legislation, provided it is drafted by Mr. Warren. Mr. Warren has drafted a bill which will be sponsored by another organization. The bill calls for consent of the female, provides that no person may have a legalized abortion unless the person has been a resident of Arkansas for four months prior to the abortion. The abortion must be performed in a licensed hospital and there must be a certification signed by three physicians who are not partners stating that the pregnancy would either imperil life or impair health and there is a provision for abortion in the event of rape or incest, provided the rape was reported to law enforcement officers within seven days after the rape. The law follows to a great extent the American Bar Association's model bill and is similar to the one now in effect in North Carolina.

2. Immunization Law

School people, the State Board of Health and physicians are unhappy with the present law. It is rather complicated. Mr. Warren plans to work with the school administrators and State Board of Health to get amendments to the law which will be satisfactory to all concerned.

3. Blood Bank Bill

Mr. Warren has drafted a bill known as the Blood Bank Bill to amend the commercial code to provide that the furnishing of blood is a service and not a sale. The bill follows the recommendations of the American Medical Association.

4. Anatomical Gift Act

Mr. Warren has drafted an Anatomical Gift Act which will be introduced by Mr. Cal Ledbetter of Pulaski County. It follows the suggestion from the Legislative Department of the AMA. The bill will permit a person in his lifetime to give certain tissues, organs, or his whole body, to science. It follows the standard anatomical gift act.

5. Immunity for Hospital Committees

Mr. Warren is drafting a bill which would provide some immunity from liability to physicians who make reports in hospitals as tissue committees and various other committees. It is felt that the committees face some danger from libel and slander laws. The proposed bill is designed to offer protection from such actions. The Society will sponsor this bill.

6. Hearing Aid Board

The Hearing Aid people want to create a board to regulate the sale of hearing aids. Mr. Warren plans to recommend to the Hearing Air people that they be put under the State Medical Board with their own separate examining committee, as was done with the physical therapists.

7. Drug Manufacturers and Distributors

Mr. Warren is drafting a bill to require drug wholesalers and distributors to register with the State Board of Pharmacy. The Society will probably sponsor this legislation.

Upon the motion of James Kolb and Ben Saltzman, the House voted to go on record as approving the legislation as proposed by the Legislative Counsel.

Mr. Schaefer presented a report from Dr. Elvin Shuffield, chairman of the Legislative Committee.

Mr. Storm Whaley, Vice President for Health Sciences of the University of Arkansas, discussed the Medical Center's budget request for the next biennium as recommended by the Governor and the Commission on Coordination of Higher Education. The budget is $7,630,427, with $622,921 for the addition of 123 beds for the first year; $8,152,151 with $371,543 for the additional 123 beds the second year. If the budget for the additional beds is approved, it will be the first time the Medical Center Hospital has been operated at full capacity of 425 beds.

The following proposal was presented by Mr. Paul Peeples, Manager of the Hospital and Professional Relations Division and Dr. George Mitchell, Medical Director of Arkansas Blue Cross-Blue Shield:

Since May 1967, when the Medical Society passed a resolution requesting Blue Shield to develop a Usual, Customary and Reasonable Charge Program, a lot of water has passed under the bridge. Some of the original ideas pertaining to this program have changed. In fact, some of the national trends have been altered and certainly these were taken into consideration in the recommendations to this House of Delegates.

You will remember that the original Usual, Customary and Reasonable Charge Program was to be implemented in four steps:

1. Confidential Register of Professional Charges
2. Presentation to Council for endorsement and to the House of Delegates for ratification
3. Present Program for approval to Board of Trustees of Arkansas Blue Cross-Blue Shield
4. Implement Program

The Confidential Register of Professional Charges was mailed to all physicians in November 1967, and was to be completed and returned by February 1968. On February 20, we had received 312 surveys; some 900 to 1,000 surveys were needed to supply sufficient statistical data to determine prevailing ranges. This needed number was not received until July 1968; thus, the first step is completed.

Some comments need to be made here pertaining to range determinations. At the onset of Medicare in 1966, there were 75 different range determinations — one for each county. Many problems developed with this system. I'm sure you may have encountered some of these since July 1, 1966.

On August 18, 1968, management at Blue Cross and Blue Shield presented to your 21-Physician Committee recommendations to update and combine the 75 locations into only five areas. These five areas were selected on the basis of shared characteristics such as population, number of physicians, per capita income, etc. In no event would physician's charges be used to determine locations. This recommendation was approved, and these prevailing ranges have now been completed. In fact, the new prevailing ranges are now being used in the Medicare and CHAMPUS Programs.

A Usual, Customary and Reasonable Charge Program must contain certain basic elements in order for it to accomplish its purpose. There are many reasons why these basic elements must be included. I will only mention two.

1. Proper rating of covered services

Whatever benefits are offered the buying public, they must be rated properly. If these rates were high, certainly the product would not be marketable. If the rates were too low, Blue Shield could not continue to provide the service.

2. Product must be marketable. IT MUST SELL.

A Usual, Customary and Reasonable Charge Program must be marketable. If it were possible for this group to develop a perfect Usual and and Reasonable Charge Program today and if the public would not purchase it, then all of our efforts would have been for naught. In fact, we would be several steps further down the road toward federal controls in the health care field.

Proper rating and a marketable product require the following six basic elements in a Usual, Customary and Reasonable Charge Program.

1. Fee payments must be based on the individual physician's usual charges to his pa-

tients (from surveys or internal statistical data)

2. To be eligible for full payment, the physician's usual charges may not exceed the range of charges for similar services under similar circumstances in the same medical market area.
3. From Participating Physicians, there must be a guarantee that the Plan's payment will be accepted as "payment-in-full" for covered services regardless of the patient's income (except in unusual cases, medically reviewed, for which additional basic payments may be made—without additional charge to the subscriber).
4. Where a Plan does not have Participating Agreements with physicians, there must exist some mechanism for negotiation with all physicians whereby the Plan's payment is accepted as "payment-in-full" for covered services—to the end that there will be no charge to the subscriber for the covered service.
5. The Plan must have an effective utilization review mechanism—it may involve cooperation with medical societies or may be internal—but it must be capable of being effective.
6. The Plan and the Medical Society must have some mechanism to assure that undue escalation in the costs of professional services does not occur.

The following recommendations submitted to you include these basis elements.

Recommendations

1. We suggest that all physicians be considered as Participating Physicians in this program.

Many discussions pro and con pertaining to Participating Physicians have occurred since the mailing of the Confidential Register of Professional Charges. The consensus of opinion among physicians seems to be that maybe individual contracts have served their purpose, and a more effective mechanism within organized medicine be established to negotiate for physicians.

2. The Medical Society would agree to establishing adequate review mechanisms which would protect the subscriber from bearing the cost of unusual charges that could not be justified by medical review.

The 21-Physician Committee of your Society has already established review mechanisms and have them in operation to review unusual situations.

3. For those physicians who have not given us updated charges, we believe that further requests could be made for a completed charge list or we could build their charge list from existing claims information. Payment to physicians who have not submitted recent charge information would be based on usual charges within the prevailing range which have been compiled from historical data.

4. The following procedure would be used in the payment of physician's claims under this program:

   A. Payment would be automatically made when the physician's charge is usual and within the prevailing range.
   B. If the physician's charge is different from his usual charge, then payment would be made when the Internal Medical Staff and/or Medical Society Review Committees reviewed the case and agreed that the usual charge was medically justified.
   C. If a physician's claim carried an unusual fee and the Medical Society Review Committee agreed that the charge was unreasonable, a reasonable payment would be made to the physician, based on the opinions of the medical review.
   D. If a physician disagrees and takes issue with the Plan and Medical Society Review, the Medical Society should then stand ready to support the Plan's action in defending the subscriber from any additional charges.

5. The mechanism for negotiation with all physicians, whereby the Plan's payment is accepted as "payment-in-full", will rest very heavily on review committees which are thoroughly representative of organized medicine and practicing physicians within the State. The decisions of these committees should substantially influence the payment of charges and acceptance of fees by physicians. And, unless their decisions are contradictory to Board Policy, they should be final and binding with regard to payment of charges and acceptance of fees by physicians.

6. The agreement with the Medical Society should make provision for a physician to review his professional charges. If the revision of charges falls within the prevailing range, it would become effective ninety days after received by the

Plan. If the charge exceeds prevailing range, it would be recorded and be included in updating ranges. These ranges will be updated at least annually.

7. If a physician prefers to collect his fees from the patient and will provide the patient a completed claim form, Blue Shield would reimburse the patient 100 per cent of the usual, customary and reasonable charge.

These recommendations were influenced greatly by conversations with your leadership in the Medical Society. Your leadership believes and has convinced management at Blue Cross and Blue Shield that organized medicine must negotiate for its colleagues, and by the same token be prepared to cope with unusual and unpleasant situations that cannot be justified by the profession.

You will recall we mentioned this Program was to be implemented in four steps. The first and second steps are completed. The Council has endorsed our recommendations for implementation and recommends presentation to the House of Delegates for ratification. We also hope to present these recommendations to the Blue Cross and Blue Shield Board of Trustees for approval on December 19.

The Federal Employees Program will be implemented January 1 on a Usual, Customary and Reasonable Charge Program. This will include some 32,000 people in Arkansas. The Regular Blue Shield Program will follow immediately just as soon as benefit variations and rates are available. These regular Blue Shield Programs will vary in covered services from a full scope of benefits to step-down methods in form of deductibles and co-insurance. The step-down methods will be used to reduce rates.

After lengthy discussion and upon the motion of H. W. Thomas and Hugh Edwards, the House voted to approve the program as outlined by Dr. Mitchell and Mr. Peeples.

Speaker Price called on Dr. John Herron, State Health Officer, to discuss that Department's legislative program for 1969. Dr. Herron discussed several items:

1. Highway Safety Legislation.

The federal highway safety legislation requires that states institute certain highway safety programs. Responsibility for two areas of legislation are assigned to the State Health Department —medical aspects of drive licensure and emergency medical services. Legislation is proposed which would provide standards for the licensing of ambulances as well as ambulance drivers and attendants, and require written records of all highway accidents. Other features of proposed legislation include an Implied Consent provision and setting of qualifications for individuals who conduct analysis of a person's blood, urine, breath or other body substance to ascertain alcohol content of individuals involved in traffic accidents.

2. Low-Level Atomic Waste Disposal.

Proposed legislation would enable the Department to purchase or lease necessary land as a site for disposal of low-level waste material from industrial plants.

3. Meat Inspection Law.

The State Law must be identical to the federal law and this will probably mean some changes in our law. Also, the Department will propose that the State Law be amended to permit the Health Department to go into court to request an injunction against some meat manufacturer or processor who is creating a public health hazard.

4. Radiation Control Bill.

The Department proposes an act which would prescribe performance standards or the control of emission from electronic products.

5. Hospitals and Nursing Home Licensing Law.

The Department proposes amendments in the present law to allow the State Health Department to give certain information to fiscal administrators of various government medical programs and to require hospitals going out of business to dispose of their medical records, preferably by assigning them to the nearest general hospital. The proposed legislation would also allow hospitals to contract with other institutions to furnish services such as surgery and obstetrical care when the hospital wishes to discontinue such services.

6. Construction Authority.

Presently the construction authority for community facilities for mentally retarded and community mental health centers has been assigned to the Division of Hospitals of the State Department of Health. It is proposed to amend the legislation to make this a statutory responsibility.

7. Facilities for Handicapped in Public Buildings.

An amendment to the Architectural Barrier

Act is proposed to provide that plans and specifications for all public buildings be submitted to the State Health Department for determining if facilities for the handicapped specified in the law have been provided.

Upon the motion of Robert Watson and Ross Fowler, the House voted to receive the report for information.

Dr. Hugh Edwards presented the following resolution:

Resolution Re: Title XIX Administrator

WHEREAS, Arkansas Blue Cross-Blue Shield has served the people of Arkansas well in furnishing prepaid health insurance, and

WHEREAS, Arkansas Blue Cross-Blue Shield has served as fiscal administrator for Title XVIII (Medicare), establishing a reputation as one of the most efficient claims processing units in the United States, and

WHEREAS, much valuable experience has been gained, and

WHEREAS, Arkansas Blue-Cross-Blue Shield enjoys the cooperation and respect of both the hospitals and the physicians of Arkansas, as providers of services and the general public as consumers.

NOW, THEREFORE, BE IT RESOLVED that the House of Delegates of the Arkansas Medical Society recommends to the Governor of Arkansas, to the Legislature of the State of Arkansas, and to the State Welfare Commissioner that Arkansas Blue Cross-Blue Shield be designated as fiscal agent for services under Title XIX when it is implemented in Arkansas, and

BE IT FURTHER RESOLVED that copies of this resolution be sent to the above-designated agencies.

Upon the motion of Hugh Edwards and James Kolb, the House approved the resolution. The meeting adjourned at 5:00 P.M.

Approved: J. P. Price, Jr., M.D.
Speaker, House of Delegates

ANSWER—What's Your Diagnosis?

DIAGNOSIS:

Pulsion Diverticulum of the Esophogus.

X-RAY FINDINGS:

There is o diverticulum orising posteriarly in the upper esaphogus in the region of the cricophoryngeus muscle.

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: 80 RHYTHM: Sinus
P-R: .16 sec. QRS: .08 sec. Q-T:

SIGNIFICANT ABNORMALITIES:

Abnarmal S-T depression, all leads.
Low valtage T waves oll leads.
Prominent U waves fused with T.

INTERPRETATION:

Abnormal.
Hypokalemia.

COMMENT:

Another example of the changes produced by hypokalemia.

OBITUARY

Dr. Willis E. Brown

Dr. Brown died January 9th, 1969, at the age of 59. A native of Danville, Illinois, he received a bachelor's degree from Albion College in Michigan and master of science and medicine degrees from the University of Michigan.

At the time of his death, Dr. Brown was president of the American College of Obstetricians and Gynecologists. He was Professor and Chairman of the Department of Obstetrics-Gynecology at the University of Arkansas Medical Center.

Dr. Brown had headed specialists' sections of the American Medical Association, Southern Medical Association, and the American Society for the Study of Sterility. He served as an examiner on the American Board of Obstetrics and Gynecology. He was a member of the Advisory Committee to the Children's Bureau of the Department of Health, Education and Welfare.

Dr. Brown was active in medical journalism and served on the editorial boards of four professional periodicals. More than one hundred twenty-five of his articles were published in scientific journals. One article "The Geneaology of the Medical Center" is maintained at the Medical Center as a historical reference on Arkansas medical education.

Dr. Brown was a member of the Association of Professors of Gynecology and Obstetrics, Society for Gynecological Investigation, American Gynecological Society, American Association of Obstetricians and Gynecologists and the Central Association of Obstetricians and Gynecologists. His major interest was in educating physicians specializing in his field.

Dr. Brown was a member of the Trinity Episcopal Cathedral and the Vestry.

Dr. Brown had been named "Boss of the Year" by the Little Rock Chapter of the National Secretaries Association.

Survivors include his widow, Mrs. Dorothy Anderson Brown; two sons, Dr. Willis E. Brown, Jr., a Minnesota surgeon, and Robert M. Brown, an Alabama physicist.

Dr. Calvin J. Dillaha

Dr. Dillaha of Little Rock died January 9, 1969, at the age of 44. He was head of the Dermatology Department at the University of Arkansas Medical Center and former president of the Pulaski County Board of Education.

He received his medical degree from the University of Arkansas in 1948 and did graduate work at the University of Chicago. He joined the University of Arkansas Medical Center clinical staff as an instructor in dermatological medicine in 1952. He became a full professor and division head in 1964.

On January 6, 1969, he received the first annual Dermatologic Discovery Award presented by the Dermatology Foundation in recognition for his original outstanding contribution. Last year he was elected to the Boards of the Society of Investigative Dermatology and the American Academy of Dermatology.

Dr. Dillaha served as a special consultant to the United States Public Health Service Division of Health at Cincinnati in 1963. He was a member of numerous medical and specialty professional organizations. He had presented papers at numerous professional meetings and had authored or co-authored some sixty-four published technical papers. One of his clinical interests was the investigation of the Brown Recluse Spider.

Survivors include his widow, Mrs. Patty Lou Martin Dillaha, one son, three daughters, one brother and one sister.

A Memorial Fund honoring Dr. Dillaha has been established by the Division of Dermatology of the University of Arkansas Medical Center.

PERSONAL AND NEWS ITEMS

Dr. Johnston Retires

Dr. O. J. T. Johnston of Batesville retired at the first of the year after practicing medicine in Independence County for nearly 62 years. He was president of the Arkansas Medical Society in 1937-38.

Dr. Norris Honored

The Masons of Tuckerman recently honored Dr. R. O. Norris at one of their meetings. He is retiring from practice in Tuckerman.

Dr. Mock and Dr. Baggett Attend Seminar

Dr. Will H. Mock and Dr. Jeff Baggett of Prairie Grove attended the Cancer Seminar in Fayetteville on December 6. Dr. Mock was one of the speakers at the meeting.

Dr. Dickinson Resigns

Dr. Rodger C. Dickinson of DeQueen recently submitted his resignation as a member of the State Welfare Board.

Physicians Plan Nursing Home

Dr. C. E. Crawley, Dr. H. N. Cogburn, Dr. G. A. Sexton and Dr. Norman R. Saliba, all of Forrest City, are planning a nursing home with seventy beds to be located in Forrest City. Plans are to have the nursing home in operation by December 1969.

Dr. Thomas Attends Meeting

Dr. H. W. Thomas of Dermott attended a conference in December on health care costs arranged by the U. S. Department of Health, Education and Welfare.

Physicians Elected Chiefs of Staff

Dr. James Guthrie of Camden was elected chief of staff of the Ouachita Hospital for 1969. Dr. Tom Meek will serve as vice chief.

Dr. George A. McCrary has been elected chief of staff of Rebsamen Memorial Hospital in Jacksonville.

Dr. William A. Hudson of Harrison has been appointed chief of staff of the Newton County Nursing Home.

AMA Appoints Physicians

The Board of Trustees of the American Medical Association has reappointed Dr. Jack Kennedy of Arkadelphia to the AMA Committee on Medical Aspects of Sports. Dr. Ben Saltzman of Mountain Home was reappointed chairman of the AMA Council on Rural Health.

Dr. Gary Elected

Dr. Eli Gary of Arkadelphia was recently elected to the Arkadelphia Board of Directors.

PROCEEDINGS OF SOCIETIES

The CLARK COUNTY MEDICAL SOCIETY is cooperating with a nationwide research program on the nutritional status of preschool children. The purpose of the project is to obtain an accurate picture of children from one to six years of age and point the way to a better understanding of their health needs.

New officers for the INDEPENDENCE COUNTY MEDICAL SOCIETY are: Dr. James M. Stalker of Batesville, president; Dr. Troy Raney of Cave City, vice president; Dr. Chaney Taylor, Batesville, secretary-treasurer.

THE FIFTH COUNCILOR DISTRICT MEDICAL SOCIETY met in El Dorado in January. Speakers from the M. D. Anderson Hospital and Tumor Institute in Houston presented a program on malignant diseases.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis and Respiratory Disease Association

EXPOSURE TO COLD ENVIRONMENT AND RHINOVIRUS COMMON COLD

Volunteers without antibody to a rhinovirus strain were subjected to a cold environment before and after inoculation with the viral strain. No effect on the illness was demonstrated, despite popular belief that cold has an adverse effect on the common cold.

Although in animals exposure to cold has been shown to increase both the frequency and severity of viral infections, such exposure has not been demonstrated to increase the susceptibility of man to infection with common-cold viruses. Studies published to date, however, have been among volunteers whose antibody status to the infecting virus was not known.

For the present study 44 volunteers found to be free of antibody to rhinovirus Type 15 were inoculated with purified stocks of this strain. Of these, 27 were exposed to cold at the time of inoculation and during incubation, illness, and recovery. The remaining 17, who served as controls, were not exposed to cold.

To test the normal reaction to the cold devices used in the study, five additional volunteers, wearing light cotton shorts and undershirts, spent one and one-half hours in rooms with temperatures of 4° and 10°C (centigrade). Since the cold caused shivering which led to elevation of body temperature, adjustments were made to lower body temperature. These consisted of immersion in a water bath at 32°C for four to six hours and of wearing wool jackets in the 10°C room.

The subjective opinion of the volunteers was that the experience in the 4°C room was uncomfortable and comparable to the short-term chilling commonly encountered in nature. In contrast, when placed in a tank with 32°C water three days later, they found the experience comfortable.

R. Gordon Douglas, Jr., M.D.; Keith M. Lindgren, M.D.; and Robert B. Couch, M.D. *The New England Journal of Medicine*, October 3, 1968.

Inoculation of the 44 subjects was done by small particle aerosol in 28, by nasal instillations of virus-containing fluids in 16. There was no difference in clinical response to the two methods.

INOCULATED AFTER EXPOSURE

In one experiment, nine of the 16 volunteers inoculated by nasal drops were infected at the end of exposure in the 4°C room. The other seven were not exposed to cold. Infection rates in both groups were similar and the illnesses were typical of the common cold. All the infected demonstrated early-high virus-shedding patterns. In each an eightfold or greater rise in serum neutralizing antibody developed five weeks after inoculation. Titers in both groups were comparable.

In following experiments six volunteers were placed in the 10°C room and seven in the cold bath on the morning after inoculation. Both exposed groups were compared to unexposed volunteers inoculated at the same time. Results were similar in all three groups. The frequency and severity of illness were not significantly greater in the group exposed to cold than in the unexposed volunteers. Furthermore, there was no increase in quantities of virus shed from the nasopharynx among volunteers exposed to cold. Antibody responses among those exposed were also similar to those not so exposed.

Clinical responses, virus-shedding patterns, and antibody responses were also similar in two volunteers placed in the water bath on the first or second day of illness and two others inoculated at the same time but not exposed to cold.

ILLNESSES SIMILAR

In another experiment, six volunteers were placed in the 10°C room and seven in the water bath on the seventh or eighth day after inoculation. Illnesses in the two groups were similar.

When four volunteers were re-exposed to cold in the water bath, nasal obstruction and discharge developed in three. In two the symptoms

disappeared within eight hours; in the third, who also had headache and cough, the symptoms lasted for 24 hours. No symptoms were observed in the three volunteers first exposed to cold after recovery from illness. Virus-shedding patterns and mean antibody responses were similar in both groups.

Pneumococci and staphylococci as well as nonpathogenic species of bacteria were recovered from nose and throat swabs from both the volunteers exposed to cold and from those not exposed in each of the experiments.

No effect of exposure to cold on a common cold due to rhinovirus Type 15 that might account for the popular belief that cold was bad for a common cold was demonstrated. However, two possible mild effects of cold on rhinovirus illness were noted. One was a slight increase in nasal symptoms in three of seven volunteers exposed to cold during recovery, and the other was a slightly greater frequency of illness among some subjects exposed to cold during the incubation period. In both, the difference between subjects exposed to cold and controls was minimal.

Failure to demonstrate a relationship between cold and the common cold could be because environmental temperature has no effect on the common cold; or because exposure for longer periods or to more severe conditions may be necessary to influence the course of common colds. It may be, too, that exposure to cold influences the course of other viral illnesses in man, but not rhinovirus illness.

It is also possible that infection with a wild rhinovirus and its tissue culture progeny would have a different result, as might exposure to a different strain of virus. However, rhinoviruses are the most frequent isolates from adults with colds and, with the possible exception of Type 1A, there are no predominant serotypes.

NO BACTERIAL COMPLICATIONS

Exposure methods used in the study permitted testing of differing effects of cold. The 4°C room was analogous to short-term chilling of the type encountered in nature. The water bath was a comfortable procedure, but produced a fall in body temperature.

None of the volunteers had bacterial complications such as otitis media or pneumonia. The presence of potentially pathogenic organisms was not greater in the volunteers after infection and exposure to cold than in those after infection alone. In neither group were potential pathogens more frequent after infection than before inoculation. There was no evidence that respiratory viral infections predispose to pneumonia by qualitative changes in bacterial flora. More detailed bacteriologic studies will be needed to determine if significant quantitative changes occur in this regard.

Contributions of Northern Populations to Understanding of Tuberculin Sensitivity

L. B. Edwards (8120 Woodmont Ave, Bethesda, Md), G. W. Comstock, and C. E. Palmer

Arch Environ Health 17:507-516 (Oct) 1968

Results from a number of skin-testing programs with tuberculin and other mycobacterial antigens show that northern populations have made important contributions to a better understanding of tuberculin sensitivity in human populations. Alaska played a key role because it is the only area found so far where tuberculin sensitivity apparently caused only by infections with *Mycobacterium tuberculosis* can be studied in humans. Results in Alaska thus furnished a basis for interpreting reactions to tuberculin and other antigens in populations living elsewhere. These findings have also furnished a vital link between the laboratory and the field. The remarkably consistent similarity of reactions among Alaskans and tuberculous guinea pigs supports the belief that skin-test results in laboratory animals can be used as a guide for the interpretation of skin-test results in humans.

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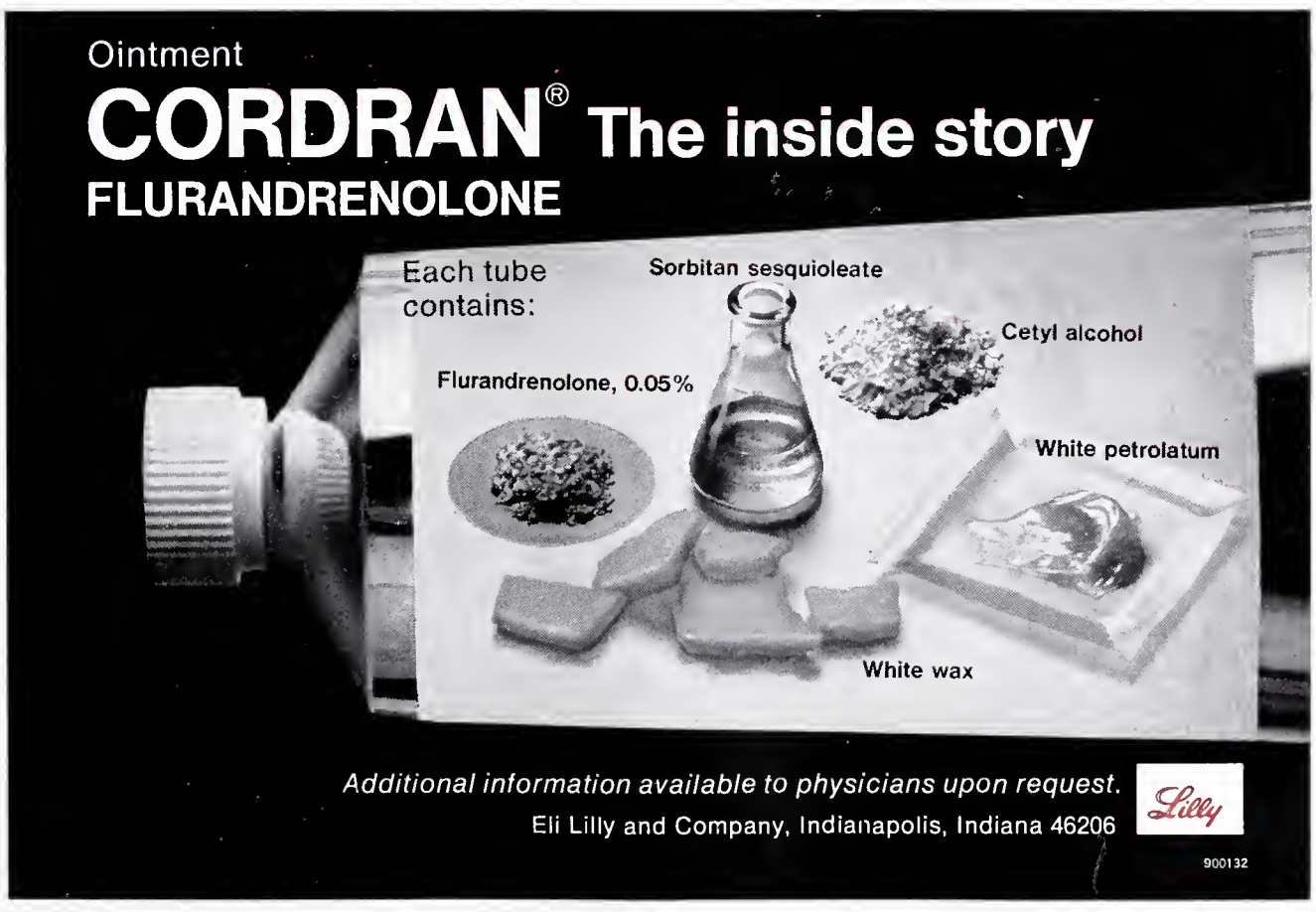

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Management of Burns

Herbert Conway, M.D.*

Burns came under the care of surgeons about three decades ago. Previously they had been treated throughout the United States by dermatologists. At that time the majority of burn patients died due to infection. Unfortunately, one-third of the deaths due to burns still are due to the ravages of infection for burns are contaminated with bacteria immediately or shortly after the injury. The flora of burn wounds show "initial" staphylococci and streptococci organisms. These later are replaced with enteric pathogens such as Proteus, Pseudomonas and Aerobacter. Immediately following large burns, experimental animals become acutely susceptible to bacterial invasion but this susceptibility is lost after twenty-four to forty-eight hours. Approximately one thousand persons die each month in the United States from burns. Although industry has initiated improved protection from thermal injury for the laborers, an increasing number of burns are occurring in homes during periods of recreation. Due to this interplay it has been reported (Moyer, 1953) that there has been little improvement in the fatality rate from burns since 1905.

Previously, many patients who sustained thermal trauma expired in shock during the early period following the burn, the phase of burn edema (Moore). We have learned how to resuscitate such patients and to prolong life. This, unfortunately, is a hollow victory since such individuals may then succumb during the septic phase of the burn wound. Consequently, the management of burns has become of paramount importance. It is in the care of the wound that significant advances in the decrease of mortality due to burns will be made. This is not to say that this area has not been given great attention. Regretfully, management of the burn wound has not been especially helpful in the past. During the thirty-six-year period prior to the introduction of antisepsis by Lister in 1868, the mortality from burns at the Glasgow Royal Infirmary ranged from thirteen to seventeen percent. During this time local treatment consisted solely of a dry cotton-wool dressing. In the ensuing seventeen years, carbolic oil was applied to the wound without significant effect. This was followed in turn by the sodium bicarbonate and picric acid treatments with a resultant mortality rate of thirty-seven percent. With the introduction of tannic acid treatment in 1925 by Davidson, further reduction in mortality rate to levels approaching those of the preantiseptic era was achieved. Not until its deleterious effects of hepatic toxicity, infection, eschar formation and contracture were appreciated did tannic acid therapy fall into disrepute. Allen and Koch (1942) stressed the value of compression dressings while Wallace (1949) emphasized the exposure method in the treatment of burns previously proposed by Sneve (1905). Until recently, various efforts directed toward the management of the burn wound have met with little success in reducing burn mortality.

Ideally, the management of the burn wound should achieve several objectives:

1. Ease of management
2. Absence of pain
3. Prevention of clinical infection
4. Prevention of conversion of second degree burn to third degree burn
5. Easy resurfacing of the wound with physiologically intact skin (dermis and epidermis)
6. Maintenance of homeostatic mechanisms
7. Diminution in period of morbidity
8. Prevention of deformity
9. Decrease in mortality rate

Recently, two agents have been introduced to aid in the management of burns and to attain these objectives. They are silver nitrate solution,

*New York, N. Y.
From The Department of Plastic and Reconstructive Surgery, The New York Hospital-Cornell Medical Center, 525 East Sixty-eighth Street, New York, New York 10021.

0.5 percent, introduced by Moyer and Monafo in 1965 and mafenide hydrochloride, 10 percent concentration in a water-soluble base (Sulfamylon), introduced by Moncrief, *et al.,* in 1966. Both of these agents are easily applied and require clean, but not aseptic, technique. Both require only twice-daily dressing involving a single person for a limited time. Application of mafenide is accompanied by minimal pain of limited duration, usually confined to the area of second degree burn. Silver nitrate solution (0.5 percent) causes no pain.

The most notable achievement of both of these agents is the marked reduction in the numbers of bacteriae in the burn wound, a state which is reflected in the significant decrease in the incidence of burn sepsis. This latter condition is by far the leading cause of death in those patients with thermal injury and has resulted in the high mortality rates still extant. Streptococcus, Pseudomonas pyocyanea and Staphylococcus aureus, coagulase-positive are the common organisms which infect tissue made necrotic by thermal trauma. When Pseudomonas is present for any length of time it tends to become the predominant organism because it elaborates an antibacterial substance, pyocyanin, which causes lysis of other bacteria. It is because of this and its ubiquitous presence that Pseudomonas has become the predominant organism involved in burn wound sepsis. Both 0.5 percent silver nitrate solution and mafenide have broad ranges of antibacterial activity and are capable of reducing bacterial colonization to levels which are less than those of clinical infection. Thus, sepsis of the wound does not result. Both results are realized if these agents are applied shortly after the thermal insult. It has been our experience with solutions of dilute silver nitrate that infection, even after it is established, may be reversed. Therefore, we feel that the use of 0.5 percent solution of silver nitrate dressings is indicated even in wounds contaminated for a long period.

The major cause of conversion of a second degree into a third degree wound is bacterial colonization of the burn and subsequent destruction of deep cells of the epidermis and of the hair follicles. Sweat glands appear to play no part in the re-epithelialization of wounds of a deep second degree burn. By prevention of infection, wounds which are ostensibly third degree by clinical criteria have been shown to re-epithelialize completely using either dilute silver nitrate solution or mafenide. Silver nitrate does not prevent the prompt re-epithelialization of donor sites of skin grafts. Mafenide does not prevent epithelial growth.

Although the spontaneous separation of thermally necrotic skin is somewhat impeded by the use of these agents, most notably mafenide, neither interdicts early excision of the necrotic tissue and prompt resurfacing of the wound by split-thickness grafts of skin *(vide infra).*

Both mafenide and hypotonic solutions of silver nitrate upset the homeostatic mechanisms or the organism. Mafenide tends to cause an acidosis and may also play a role in producing pneumonia by an unknown mechanism. Hypotonic solutions of silver nitrate siphon off extracellular minerals, most notably sodium chloride, especially in children.

Preliminary reports show definitely that both of these agents are helpful in reducing the mortality from thermal trauma. However, these agents are not a panacea for the surgeon called upon to care for the burned patient. Because of their capacity to alter the syndrome of "burn wound sepsis," spontaneous re-epithelialization of the burn wound from spared follicles has met with tacit approval. We believe this approval to be wrong. In spite of the fact that these hair follicles, which were destroyed by infection following earlier methods of treatment, survive as islands of regenerating epithelium, the covering which results from the proliferation of their cells is scar epithelium. This is devoid of the most important component of the skin, dermis. The latter provides the essential physiological functions of the skin, namely, thermoregulation, diaphoresis, elimination of metabolites, elasticity, and mobility of the integument over the underlying tissues during trauma. In the acute phase of the burn, water is lost through vaporization from the wound at rates varying from twenty-five to three hundred ml. per square meter per hour because of the loss of the normal water-vapor barrier. That granulation tissue allows for the passage of water and salt is also known. Application of a skin graft re-establishes the cutaneous envelope and returns the rate of water loss by vaporization to normal levels.

During the period following the burn, the patient sinks into negative nitrogen balance and remains so until the wound is closed. The cata-

bolic phase is due in large part to protein loss from the wound, but loss of urinary nitrogen also contributes as long as the wound remains unsurfaced. The important fact is that this catabolic phase is converted to one of anabolism when the wound is covered by skin.

All burn wounds are contaminated by bacteria. The employment of topical agents decreases the numbers of organisms to a level where active bacterial invasion of uninjured tissue does not occur. No topical agent completely sterilizes the wound. As a consequence, the threat of "burn wound sepsis" continues to exist. Coverage of a contaminated wound by skin grafts will virtually eradicate all bacteria within twenty-four hours.

Because of the above considerations it is our opinion that early surgical excision of burn wounds and immediate coverage by grafts of skin is the treatment of choice. The initial procedure should be done approximately by the fifth to the fifteenth postburn day. The area of excision should not exceed fifteen to twenty percent of the body surface. Where doubt exists in a particular case as to what constitutes the area of third degree burn, the use of intravenous dyes is helpful in its delineation. When the patient has fully recovered from his operation and his condition is stable, he is returned to the operating room and further procedures performed until the wound is covered by skin grafts. An interval of five to seven days between operations is anticipated. Excision of the eschar is carried down to fascia because hemostasis is easily obtained at this level and the acceptance ("take") of grafts is better than on fat with its poor vascular supply. In fact, the burn wound is literally hungry for skin grafts in the period between the fifth and fifteenth postburn day. Nor is a paucity of donor sites an argument for delay. Thus, split-thickness grafts of skin (Ollier-Thiersch) will allow donor sites to heal rapidly and provide for successive crops of grafts from the same donor sites. In addition, homografts of skin procured from fresh cadavers or living donors can provide temporary coverage. These homografts can be alternated with strips of autografts or may be used to completely cover the wound. They will provide temporary coverage for three to five weeks. The assiduous surgeon will not permit their spontaneous sloughing as this is accompanied by dense scarring of the wound and diminution in the vascular supply of the bed.

Procurement of the skin graft and dressing of the donor site are accomplished before the burn wound is exposed. This prevents contamination of the donor site by organisms from the burn wounds. It is preferable to procure the grafts as rapidly as possible and this is best accomplished by the employ of free hand knives (Ferris Smith or Humby) or by the Brown electric dermatome. The surgeon should endeavor to limit duration of anesthesia to one hour or, at the most, to one and one-half hours. After the donor sites are isolated by secure outer dressings, the area of burn eschar is rapidly excised down to the deep fascia and the skin grafts placed over the resultant defect. Time should not be wasted on suturing the grafts to the edges of the wound; rather, the grafts should be placed upon the defect and covered with a single layer of mesh gauze which is then affixed to the surrounding skin by collodian (cellulose in ether). Warm saline dressings are applied over this gauze to encourage vasodilation of the recipient bed and hence rapid vascularization of the graft. These saline dressings are changed frequently (every two to four hours) during the immediate postoperative period to facilitate conversion of circulation to the graft from that of a plasmatic to a hemic nature.

The grafts should not be lacerated in the mistaken belief that this will allow for the egress of hematoma, seroma or pus. In doing so, the surgeon assumes an attitude of clairvoyance in that he knows exactly at what point in the recipient bed these problems will occur. Inspection of the graft during the frequent dressing changes will reveal where an accumulation of fluid is separating it from the bed. The graft should then be perforated by a No. 11 blade, allowing the fluid to escape and the graft to establish continuity with the bed.

It is axiomatic that all healing wounds should be immobilized. Recently grafted burn wounds are no exception. Areas on the face and neck are immobilized by appropriate bandages (e.g. Barton's bandage) and judicious use of sandbags. Body casts which are "windowed" over the area of graft are indicated in the management of burns of the torso. This curtails gross movements by the patient but does not impinge on the grafts. Thus, the latter are free to move in consort with the underlying bed during respiration and this prevents their being sheared from the

recipient bed. Extremities should be immobilized by skeletal suspension. Besides providing immobilization of the extremity, this also aids in venous and lymphatic drainage, removes all possibility of pressure being applied to the graft, and facilitates inspection and dressing. It should be noted here that circumferential burns with signs of impending neurovascular insufficiency of the extremity require escharotomy down to the deep fascia as soon as the complication is evident. Kirschner wires are placed through the tibial tubercle and os calcis or through the metacarpals and olecranon even if these areas are encompassed by the burn. The theoretical objection that this will result in osteomyelitis has not been substantiated in our prolonged use of this technique.

In the management of the burn patient correlation of the local care of the wound with the general treatment of the patient is most important. In deep burns (up to a limit of fifteen to twenty percent of the surface area of the body) surgical excision and immediate coverage by a split graft of skin is the method of choice. In large burns the silver nitrate method of therapy is preferred at the present time. The great advantage of this method is that the hypotonic solution (0.5 percent silver nitrate) causes exudation of a tremendous amount of fluid and electrolytes from the body. The loss is compensated for by intravenous therapy. The treatment of complete debridement of the traumatized necrotic tissue stands as always. The defects are subsequently covered with autogenous grafts. In the management of patients who do not have sufficient undamaged skin to provide grafts for coverage, homoplastic grafts can play a useful role. Such grafts allow the patient to recoup his vital forces so that the limited donor sites subsequently may be used over and over again to provide coverage by autogenous skin.

The role of the surgeon in the management of the burn patient is to be aggressive and militant in the treatment of the wound. A golden period exists from the fifth to the fifteenth day after the injury in which the wound is literally hungry for skin. The surgeon must anticipate this, recognize it on arrival and proceed actively in the coverage of the wound by skin grafting. Spontaneous healing of the wound following a burn in which the entire skin has been destroyed is never acceptable because it results, we believe, in a scarred epithelium and can never replace the physiological fineness achieved by the application of a split graft of skin.

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Short-Term Group Psychotherapy for Post-Myocardial Infarction Patients and Their Wives

C. A. Adsett and J. G. Bruhn (Dept of Psychiatry, McMaster Univ, Hamilton, Ontario)
Canad Med Assoc J 99:577-584 (Sept 28) 1968

Ten coronary patients experiencing difficulty in long-term adaptation to their heart attacks were offered focused short-term group psychotherapy. Six patients participated in ten biweekly group meetings while their wives met for parallel group therapy. The patients showed continuing anxiety about further attacks, loss of self-esteem, and conflict over dependency-independency. The wives saw themselves as responsible for their husbands, were overly protective, anxious about the uncertain future and felt guilty about the husband's disability. Physiological monitoring at six-week intervals revealed higher cholesterol during and following therpy and higher uric acid following therapy. No change occurred in pulse, blood pressure, or ECG and no anginal attacks were experienced during therapy sessions. As a result of therapy, patients and wives appeared to achieve an improved psychosocial adaptation.

Concept of Social Disability

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Arch Gen Psychiat 19:394-403 (Oct) 1968

The term "physical impairment" refers to permanent biological limitations, and "psychological impairment" refers to permanent mental limitations. A third type of impairment has emerged. The progressive specialization of modern life, the complexity of technology, and the existence of certain cultural, educational, and economic deprivations have called attention to "social impairment," which is characterized by an inability to communicate, to function socially and take advantage of the facilities available in any society. Impairment exists when the patient exhibits limitations of function relative to others of the same age and sex and to specific-situation demands. Social disability is the end result of any impairment that leads to more or less permanent exclusion from job, family, or social life. Social psychiatry must prevent various minor impairments from becoming major disabilities.

The Mortality and Morbidity of Surgery for Biliary Tract Disease

Charles K. McSherry, M.D., and Frank Glenn, M.D.*

There have been many advances in the surgical treatment of biliary tract disease in the 101 years that have elapsed since John S. Bobbs performed the first cholecystotomy on June 15, 1867.[1] In spite of this initial success, the surgical treatment of biliary tract disease in the latter part of the nineteeneth and early twentieth centuries was reserved almost exclusively for those patients with advanced, if not terminal, stages of biliary lithiasis. In 1934, Heuer[2] was able to collect reports of 36,623 patients operated upon for biliary tract disease in Europe and America. The operative mortality was 6.6 per cent. The majority of these deaths were due to hepatic failure secondary to long-standing biliary tract disease, errors in surgical management and pulmonary complications that often were related to anesthesia.

In 1952,[3] and again in 1963,[4] Glenn called attention to those factors that were of etiological significance in patients who succumbed following biliary tract surgery at The New York Hospital-Cornell Medical Center during the years 1932 through 1962. From these studies it was apparent that the proportion of deaths due to long-standing obstruction of the extrahepatic biliary tree, pulmonary disease, hemorrhage and shock were decreasing. On the other hand, deaths due to degenerative diseases, particularly of the cardiovascular system, were increasing.

In an effort to further improve the results of biliary tract surgery, the authors[5] recently documented the incidence and nature of the non-fatal complications of biliary tract surgery. Specific measures were suggested by this study to reduce the morbidity and potential mortality of biliary tract surgery. The disability imposed by complications following biliary tract surgery assumes great significance with the realization that 250,000 people undergo biliary tract operations each year in the United States alone.

The present report aims to provide an overall appraisal of the risk factors involved in the surgical treatment of patients with non-malignant conditions of the biliary tract. Factors contributing to both fatal and non-fatal complications will be presented. This information is essential to physicians responsible for the care of patients with biliary tract disease.

CLINICAL MATERIAL

From September 1, 1950, through August 31, 1966, 3,115 patients underwent 3,217 operations at The New York Hospital-Cornell Medical Center for non-malignant disease of the biliary tract (Table 1). During this 16-year period there were 63 postoperative fatalities, a mortality rate of 1.9 per cent. Non-fatal complications were experienced by 221 patients (6.9%). The hospital records of these 284 patients were studied and the results reported herein.

MORTALITY

The 63 patients who died following biliary tract surgery ranged in age from 31 years to 83 years with an average age of 67.9 years. There were 36 females and 27 males. Although the incidence of biliary tract disease is higher in women, the proportion of fatal and non-fatal complications is higher in men. Complete postmortem examination was performed in 36 patients (57.1%).

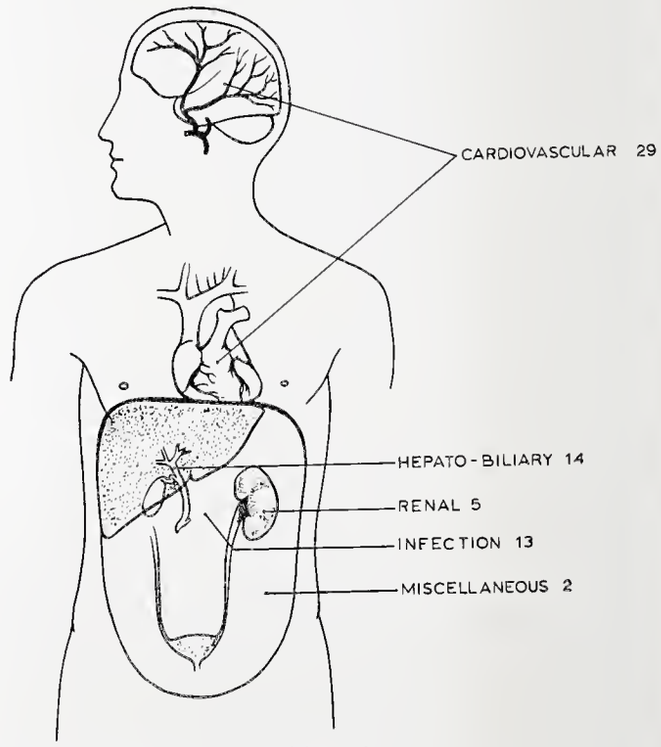

Figure 1

Etiologic factors in 63 patients with fatal complications following biliary tract surgery.

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The indications for operation in this group of patients are listed in Table 2. It is of considerable interest that more than half of the fatalities, 35 patients or 55.5 per cent, occurred in patients with common duct stones and that acute cholecystitis was present in 23 patients or 36.5 per cent.

Significant heart disease was detected in the preoperative evaluation of 45 patients (66.6%). Forty-two patients had arteriosclerotic and 3 patients rheumatic heart disease. Disease of the coronary arteries and/or conduction system were noted in the electrocardiographic tracings of 22 (36.6%) patients. Blood pressure in excess of 140/90 was documented in 37 patients (61.7%). There was chronic renal disease in 22 patients (36.7%) as evidenced by a sustained B.U.N.>18 mg per cent. Liver disease, primarily cirrhosis, was present in 19 patients (31.7%).

The 63 postoperative deaths are classified in Table 3 according to the primary cause of death based on clinical, and where possible, autopsy findings. Cardiovascular-renal disease, accounted for 34 deaths (53.8%). As might be anticipated, acute coronary occlusion was the leading single cause of death. Cerebrovascular accident and renal failure each accounted for 5 deaths. Two patients each died of congestive heart failure and cardiac arrest during operation. Two patients had a fatal pulmonary embolus and another, age 31, died of acute necrotizing pulmonary arteritis. A 72-year-old man died of occlusion of the superior mesenteric artery.

In the group of patients listed as deaths due to hepato-biliary disease, there were eight fatalities from cirrhosis. The terminal event in these patients was hepatic coma and/or massive gastrointestinal bleeding. Three patients died of postoperative pancreatitis. Common duct exploration had been performed in each of these patients with recovery of stones in only one. Two patients, operated upon for common duct obstruction and suppurative cholangitis, died of multiple liver abscesses. One patient, a 61-year-old woman, was found to have a dissecting aneurysm of the hepatic artery at operation for acute cholecystitis and choledocholithiasis. At autopsy, the entire right lobe of the liver was infarcted.

Postoperative infections were responsible for 13 deaths. Inappropriate use of antimicrobial drugs and failure to recognize the importance of fluid replacement therapy, resulted in five deaths from enterocolitis in the early years of the study. There were five patients with abscesses of one or more of the subphrenic spaces. Antemortem blood cultures were positive in each patient. Two patients died of generalized peritonitis. A 73-year-old diabetic male succumbed 36 hours following cholecystectomy and common duct exploration of gas gangrene of the abdominal wall.

MORBIDITY

The 260 non-fatal complications of biliary tract surgery may be conveniently discussed under two categories, namely those that are common to all intra-abdominal operations and those peculiar to the biliary tract. The majority of the complications, 140 or 53.8 per cent, affected organs or systems other than the biliary tree. The remaining 120 complications (46.2%) could be attributed to the disease conditions or the operations performed upon the biliary tract.

EXTRABILIARY TRACT COMPLICATIONS

The nature and location of the 140 extrabiliary complications are depicted in Figure 2. Pulmonary disorders, particularly pneumonitis and atelectasis, were the most common extrabiliary tract complications and occurred in 67 patients. There were 38 patients with pneumonia, atelectasis or roentgenographic evidence of a combination of both pulmonary complications. The most common area of lung involve-

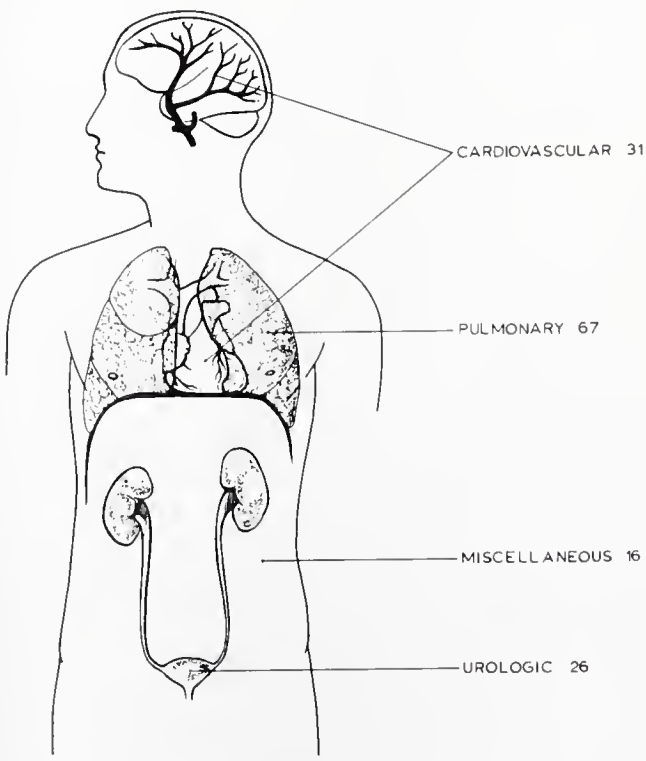

Figure 2
Extrabiliary complications experienced by 140 patients after biliary tract surgery.

ment was the right lower lobe. The majority of pulmonary complications occurred on or before the third postoperative day. Postoperative phlebitis occurred in 24 patients, two of whom experienced pulmonary infarcts. Five additional patients had pulmonary infarcts without clinical evidence of phlebitis. All seven patients who experienced postoperative pulmonary emboli were over 50 years of age and four had significant arteriosclerotic heart disease.

Cardiovascular complications occurred in 31 patients. Myocardial infarction occurred in 20, arrhythmias without infarction in four, cardiac arrest with successful resuscitation in two, peripheral arterial emboli in two and cerebrovascular accidents in two patients. One patient with rheumatic heart disease experienced an episode of acute rheumatic fever. The patients who sustained postoperative myocardial infarctions ranged in age from 44 to 82 years, with an average age of 61.5 years. In 13 of these patients, their preoperative electrocardiogram was normal. Minor abnormalities of ST segments and T waves were present in the electrocardiographic readings of three patients. Auricular fibrillation was present in two and auricular flutter in one patient. The remaining patient exhibited the pattern of left ventricular hypertrophy. One-half of these patients (10) had their myocardial infarction within the first 48 postoperative hours. In the remaining 10 patients, infarction occurred up through the eleventh postoperative day.

Urologic complications were experienced by 26 patients. Urinary tract infection, principally cystitis, occurred in 20 patients. E. coli was the most common bacteria isolated from urine cultures. Six additional patients required prolonged catheter drainage for urinary retention.

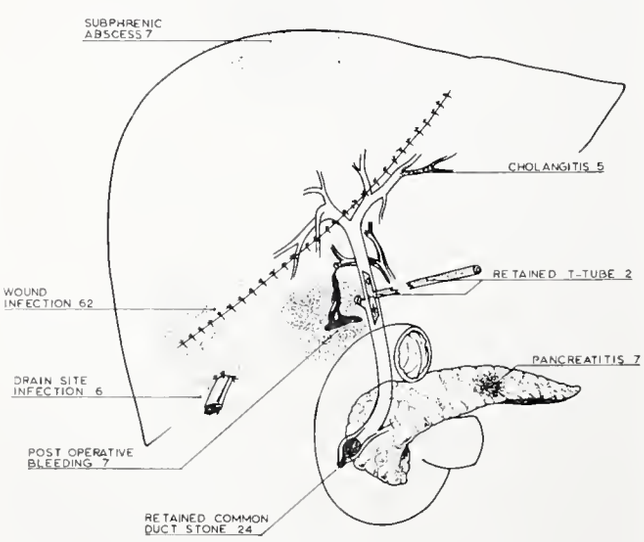

Figure 3

The distribution of biliary tract complications in 120 patients.

The miscellaneous extra-biliary complications experienced by 16 patients are listed in Table 4.

BILIARY TRACT COMPLICATIONS

The distribution and frequency of those complications resulting from the nature of the disease processes or the operations performed on the biliary tree are illustrated in Figure 3.

Infection of the wound, drain site or subphrenic spaces was the principal source of morbidity and accounted for 75 or 62.5 per cent of the biliary tract complications. Wound infection occurred in 62 patients. Considered as a group, the majority of wound infections were caused by enteric micro-organisms, particularly E. coli, enterococci and the Klebsiella aerobacter group. However, S. aureus was the most frequently encountered bacterial species. Fifteen patients had bile cultures taken during the course of their operation. In 11 of these patients, bacteria of the enteric group were identified. Ten of these patients subsequently developed wound infections from which identical bacterial species were recovered. Infection, localized to the drain site, was noted in six patients. Cultures yielded S. aureus in each instance.

Suphrenic abscess occurred in seven patients, of whom four were operated upon for acute cholecystitis. The abscess was located in the right subhepatic space in four patients, in the anterior subphrenic space on the right side in one, and in the right posterior space in another. In the remaining patient, the abscess was situated in the left subphrenic space. Six of the seven abscesses yielded a pure culture of S. aureus, P. Pyocyanea and candida ablicans were recovered from the seventh patient.

Retained or overlooked common duct stones were present in 24 patients. Fourteen of these patients had previously undergone cholecystectomy and choledocholithotomy, three cholecystectomy and operative cholangiography, two cholecystectomy, two cholescystectomy and common duct exploration, two excision of cystic duct remnant and one choledocholithotomy. In 21 of the 24 patients, operative cholangiograms were obtained at the initial operation. In 13 patients, the surgeon and the radiologist interpreted the cholangiograms as free of calculi. In eight patients, the cholangiograms were mistakenly inter-

preted as negative by the surgeon but read as positive by the radiologist. Unfortunately the latter's opinions of the cholangiograms were available to the surgeon only after the operations were completed. Nineteen of these patients were eventually reoperated upon for the retained calculi. Of the five patients not operated upon, two died of intercurrent illness, two remain asymptomatic and one has been lost to follow-up.

Retained T-tubes caused difficulty in two patients. On one patient, the tube broke at the level of the rectus fascia and in the other patient at its exit from the common duct.

Significant postoperative bleeding occurred in seven patients, three of whom required reoperation. In two instances, ligatures were insecurely tied about the cystic artery.

Pancreatitis occurred postoperatively in seven patients, three of whom had undergone common duct exploration.

Cholangitis, manifested by fever, chills and increased serum bilirubin, occurred in five patients following postoperative T-tube cholangiography. Excessive filling pressure used to instill the contrast medium into the biliary tree is the usual cause of this complication.

DISCUSSION

From the data presented in this study, several conclusions pertaining to postoperative fatalities following biliary tract surgery appear justified. The increasingly high proportion of deaths due to degenerative diseases of the cardiovascular system is no doubt related to the advancing age of the general population. It can be anticipated that the number of geriatric patients who will require biliary tract surgery will continue to increase. Age *per se* should not, however, preclude surgical treatment for calculous disease of the biliary tract. Preoperative evaluation of cardiac, pulmonary, hepatic and renal function is mandatory to minimize the risks of operation. Such information will permit the selection of the most appropriate anesthesia to be employed as well as the type of operative procedure that is both within the patient's capacity and effective in reversing the progression of his disease. In the small but significant group of elderly patients who require operation before complete evaluation and correction of deficits can be accomplished, cholecystostomy under local anesthesia imposes the least burden and at the same time relieves them of their immediate problem, usually acute cholecystitis. At a later date, and under more ideal circumstances, definitive procedures may be undertaken with greater safety. In patients with brief life expectancy due to associated conditions, additional operations may be unnecessary.

It is evident that many of the fatal as well as non-fatal complications that follow biliary tract surgery are related to the duration of biliary tract disease. Acute cholecystitis and calculi in the common bile duct occur more frequently in patients with long-standing biliary tract disease. Comparison of the mortality and morbidity experienced by these patients with those undergoing cholecystectomy for chronic cholecystitis, provides the most poignant argument in favor of recommending operative therapy as soon as the diagnosis of gallstones has been established. The so-called "silent gallstone" is rarely silent when the patient's course is carefully followed.

TABLE I

PERCENTAGE INCIDENCE OF PATIENTS EXPERIENCING FATAL AND NON-FATAL COMPLICATIONS FOLLOWING OPERATIONS FOR NONMALIGNANT BILIARY TRACT DISEASE

THE NEW YORK HOSPITAL-CORNELL MEDICAL CENTER 9.1.50-9.1.66

Procedures		No. of Operations	Mortality	Morbidity
Cholecystectomy		2395	0.5%	5.1%
Acute cholecystitis	476			
Chronic cholecystitis	1919			
Cholecystectomy plus choledocholithotomy		300	6.7%	14.7%
Cholecystectomy plus choledochotomy (neg.)		220	2.7%	14.1%
Secondary common duct exploration		138	4.3%	5.1%
Cholecystostomy		118	5.9%	3.4%
Miscellaneous procedures*		46	21.3%	30.4%
TOTAL		3217	1.9%	6.9%

*Postoperative deaths occurred following choledochoplasty in 4 patients, gastrectomy combined with cholecystostomy in 2 and cholecystectomy in 1 patient, cholecystolithotomy and cholecystoenterostomy, chloecystostomy incidental to small bowel exploration, and cholecystectomy and repair of cholecystocolic fistula.

The problem of postoperative myocardial infarction deserves special emphasis. During the 16-year period encompassed by this surgery, 36 patients sustained coronary occlusions. Sixteen (44.1%) of these patients died. It is distressing to realize that preoperative electrocardiograms were normal in 18 of these patients. Further reduction of this hazard of this important complication must await improved methods to diagnose the extent of atheromatous disease of the coronary arteries.

Contrary to popular belief, infection continues to be a source of major concern to the surgeon. Postoperative infections were responsible for 13 (20.6%) of the fatal and 75 (28.9%) of the non-fatal complications. The biliary tract infections were produced by enteric organisms or S. aureus. With respect to the former, the source of these

bacteria is believed to be from the gastrointestinal tract via the portal vein.[6] Contamination of the wound or peritoneal cavity by infected bile then results in clinical infection. It seems reasonable, therefore, to culture bile at operation in all patients undergoing biliary tract surgery. Patients with positive bile cultures in whom signs or symptoms of wound or intra-abdominal infection develop postoperatively may then be treated with antimicrobial drugs known to be effective against the offending micro-organisms. The indiscriminate use of antibiotics in patients undergoing biliary tract surgery is valueless.

TABLE 2

INDICATIONS FOR OPERATION IN 63 PATIENTS WHO DIED FOLLOWING BILIARY TRACT SURGERY

	No. of Patients	Total
Chronic cholecystitis	14	
Chronic cholecystitis with choledocholithiasis	16	30
	30	
Acute cholecystitis	14	
Acute cholecystitis with choledocholithiasis	9	
	23	23
Choledocholithiasis (previous cholecystectomy)	3	
Choledocholithiasis and choledochoduodenal fistula	2	
Choledocholithiasis and cholecystocolic fistula	1	
	6	6
Benign stricture of the common duct	4	4
TOTAL		63

SUMMARY

During the 16-year period from 1950 through 1966, operations for non-malignant biliary tract disease were performed on 3,115 patients. There were 63 postoperative fatalities, a mortality rate of 1.9 per cent. The major causes of death were cardiovascular disease, hepato-biliary disorders and infection. The importance of preoperative evaluation of cardiac, pulmonary, hepatic and renal function in the aged patient is emphasized.

There were 260 non-fatal complications experienced by 221 patients, a morbidity rate of 6.9 per cent. Complications common to other intra-abdominal procedures accounted for 140 or 53.8 per cent of the total. There were 120 (46.2%) complications directly related to the biliary tract. The principal source of morbidity was infection. Pulmonary disorders, cardiovascular disease, urologic complications and retained common duct stones were the other principal sources of morbidity.

TABLE 3

CAUSES OF DEATH FOLLOWING BILIARY TRACT SURGERY FOR NONMALIGNANT DISEASE

Cause of Death	No. of Patients	Total
Cardiovascular-renal disease		
Acute coronary occlusion	16	
Cerebrovascular accident	5	
Renal insufficiency	5	
Congestive heart failure	2	
Cardiac arrest	2	
Pulmonary embolus	2	
Acute necrotizing pulmonary arteritis	1	
Superior mesenteric artery occlusion	1	
		34
Hepato-biliary disease		
Hepatic cirrhosis	8	
Pancreatitis	3	
Liver abscesses	2	
Dissecting aneurysm of hepatic artery	1	
		14
Infection (Intra-abdominal, extrahepatic)		
Pseudomembraneous enterocolitis	5	
Subhepatic abscess	5	
Generalized peritonitis	2	
Gas gangrene of the abdominal wall	1	
		13
Miscellaneous		
Perforated carcinoma of the cecum	1	
Gastrointestinal hemorrhage due to allergic purpura	1	2
TOTAL		63

TABLE 4

MISCELLANEOUS EXTRABILIARY COMPLICATIONS FOLLOWING BILIARY TRACT SURGERY

Complication	Incidence
Agranulocytic anemia (drug induced)	1
Burn (hypothermia blanket)	1
Corneal abrasion	1
Diabetic acidosis	1
Duodenal fistula	1
Cecal fistula (incidental appendectomy)	1
Gastric dilation (acute)	1
Gastrointestinal bleeding	2
Laryngeal edema	1
Parotitis	1
Postoperative psychosis	1
Retained pulmonary secretions	1
Sickle cell crisis	1
Wound dehiscence	2
	16

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Poison Prevention Week—Its Significance

Jerry G. Jones, M.D.*

Poisoning accidents represent the most common medical emergency in children. From 500,000 to 2,000,000 children in the United States ingest poisons annually. Approximately 500 children die as a result, and the mortality rate has remained essentially unchanged for many years.[1,2] Poison Prevention Week, from March 16 to 22 this year, was established by Congress as a reminder of the need for continuing attention to this problem. It should be important not only for parents, because prevention of poisoning accidents is the responsibility of all who are in the health field.

The high incidence of poisoning accidents in children has not been ignored over the years. Since 1953, poison control centers have been established throughout the country, under the National Clearinghouse of Poison Control Centers. Arkansas has eight such centers, located in Osceola, Harrison, Ft. Smith (two centers), Pine Bluff, El Dorado, Helena and Little Rock, and consultation is available on a 24-hour basis.

Such organizations as the American Medical Association, American Academy of Pediatrics, American Association of Poison Control Centers, and the American Pharmaceutical Association have given much attention to this problem, generally their efforts taking the form of public education programs. As a result of a conference sponsored by the Food and Drug Administration in 1966, flavored 75 mg aspirin is limited to 36 tablets to a container. Medicine cabinets with child-resistant latches have been designed and are made by most of the leading manufacturers of medicine cabinets, although they are not widely used. Development of a satisfactory child-resistant medicine container has been the objective of several groups. A trial[3] of one such container, which is currently on the market, suggests that the use of its principle for containers of both medications and household products could prevent 1,600,000 of the 2,000,000 childhood poisonings that occur each year in this country.

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Past measures for prevention of poisoning accidents in children have not been adequate. As long as poisoning remains the most common medical emergency of childhood, promotion of new methods of prevention deserves the attention of all who are concerned with the health of children.

What can be done by individual physicians to prevent poisoning? The medical education imparted by a physician to his patient is undoubtedly more effective than information provided by the mass news media. Thus, physicians can caution the parents of 1-year-old children as to the increased risk of poisoning accidents, since 90% of poisonings occur in children age 1 to 4 years.[1] These parents can be given a check list of items potentially toxic to small children and advised to keep 1 oz. of ipecac syrup in the home. The parents of children who have ingested a poison should be cautioned as to the increased hazard of a repeat poisoning, a hazard that has been shown to be nine times greater than in other children.[4] These families should be referred to a public health nurse because home visits of this nature have been effective in the prevention of repeat episodes.[5] Families undergoing stress and disorganization should also be referred to a public health nurse, for they too have an increased incidence of poisoning.[4,6] Physicians can encourage their patients to avoid accumulation of unneeded medications, and he can often limit the amount of medication given at one time.

A community orientation of the physician can also prevent poisoning accidents. He can encourage the use of child-protective medicine containers by pharmacists. Bills[7,8] requiring such containers for both medications and household items are before congressional committees at the present time, and he may wish to support them. Talks might be given to groups of parents, and samples of such speeches are available from the National Clearinghouse of Poison Control Centers. Lastly, homebuilders in the community can be encouraged to install medicine cabinets with child-protective latches.

The significance of Poison Prevention Week is that poisoning accidents can be prevented. All who are concerned with the welfare of children share its importance and its responsibility.

Indexing Terms: Accidents, Poisoning, Preventive Medicine.

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Blood Pressure and Body Weight Changes During Oral Contraceptive Treatment

B. A. Chernick (Dept of Pharmacology, Univ of Western Ontario, London)

Canad Med Assoc J 99:593-599 (Sept 28) 1968

Repeated measurements of blood pressure and body weight were made in 359 women on contraceptives; 303 used norethindrome (5 mg) plus mestranol (0.075 mg) in a combined tablet, in a cyclic routine, and 56 used an intrauterine device (IUD) in a control group. There were no important differences in characteristics, age, parity, etc., of the patients assigned to the two groups. Over the first ten cycles of treatment, there was no statistically significant difference in the proportions of patients in each treatment group who had elevated blood pressure, but over the whole course of treatment a larger proportion of patients using the combined tablet had an elevated blood pressure more than once. No consistent pattern of blood presure change was observed during either treatment, but a more rigidly controlled study would be required to rule out such an effect. Although great variability in weight changes occurred during contraceptive treatment, about two fifths of both groups had no significant weight gain. The mean maximum weight change of the patients using the combined tablet was always positive, but not so with those using IUD.

SURGERY at the UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE*

*Under the direction of Gilbert Campbell, M.D., Professor of Surgery.

Dr. Masauki Hara Memorial Lecture Established

Gilbert S. Campbell, M.D.*

Today is an important and happy day in the life of the University of Arkansas Medical Center. It is an important day because the first Masauki Hara Memorial Lecture will be given. It is a happy day because this lecture will be given by Dr. Denton A. Cooley, a wonderful friend of Dr. Hara and of this Department of Surgery. Our first Masauki Hara lecturer is a Texan. He was graduated from the University of Texas in 1941. As an undergraduate, he was an outstanding basketball player as well as an outstanding student.

Our speaker was graduated from the Johns Hopkins University School of Medicine in 1944. He took his graduate training in surgery at Johns Hopkins under Dr. Alfred Blalock, who pioneered heart surgery. Prior to returning to Texas our lecturer served as senior registrar in thoracic surgery at the Brompton Hospital in London, England, from 1950 to 1951. He then returned home to Texas where he is now a distinguished Professor of Surgery at Baylor University College of Medicine.

It would be both time consuming and superfluous to list his membership in so many learned societies and to list all of his many honors. I learned of his most recent honor in the latest issue (Jan. 13, 1969) of Sports Illustrated. This quasi-medical journal cited his efforts in administering emergency medical care to a lady football fan who fainted at the Texas-Houston game this past fall. (Incidentally, Coach Darrel Royal was none too stable himself.) Dr. Cooley went to her aid and found her in no serious difficulty; but when the woman came to she said to Dr. Cooley, "Young man, can you get me a doctor?" Dr. Cooley said that he was a doctor and gave her his name. She didn't believe him. Her husband went right on watching the football game, Dr. Cooley said, "and I missed the entire third quarter." Other Texans recognized his talents and in 1968 he was voted Man of the Year in Texas by an overwhelming majority.

Arkansans are honored and elated that Dr. Denton A. Cooley is the first Masauki Hara lecturer.

Dr. Cooley will speak on cardiac transplantation, a dramatic and challenging subject in which he has accumulated a larger clinical experience than any one. I take pleasure in introducing Dr. Cooley.

DR. DENTON A. COOLEY: Thank you Dr. Campbell, Mrs. Hara, members of the faculty and students of the University of Arkansas Medical Center, ladies and gentlemen. It is indeed a pleasure and a privilege for me to be chosen to give this first lectureship in honor of Dr. Mas Hara. I remember Dr. Hara as an outstanding cardiovascular surgeon and educator, investigator and above all a very gentle man. Therefore, it is a particular pleasure for me to be here today to join with Dr. Hara's family and yourselves in paying honor to this great and immortal individual.

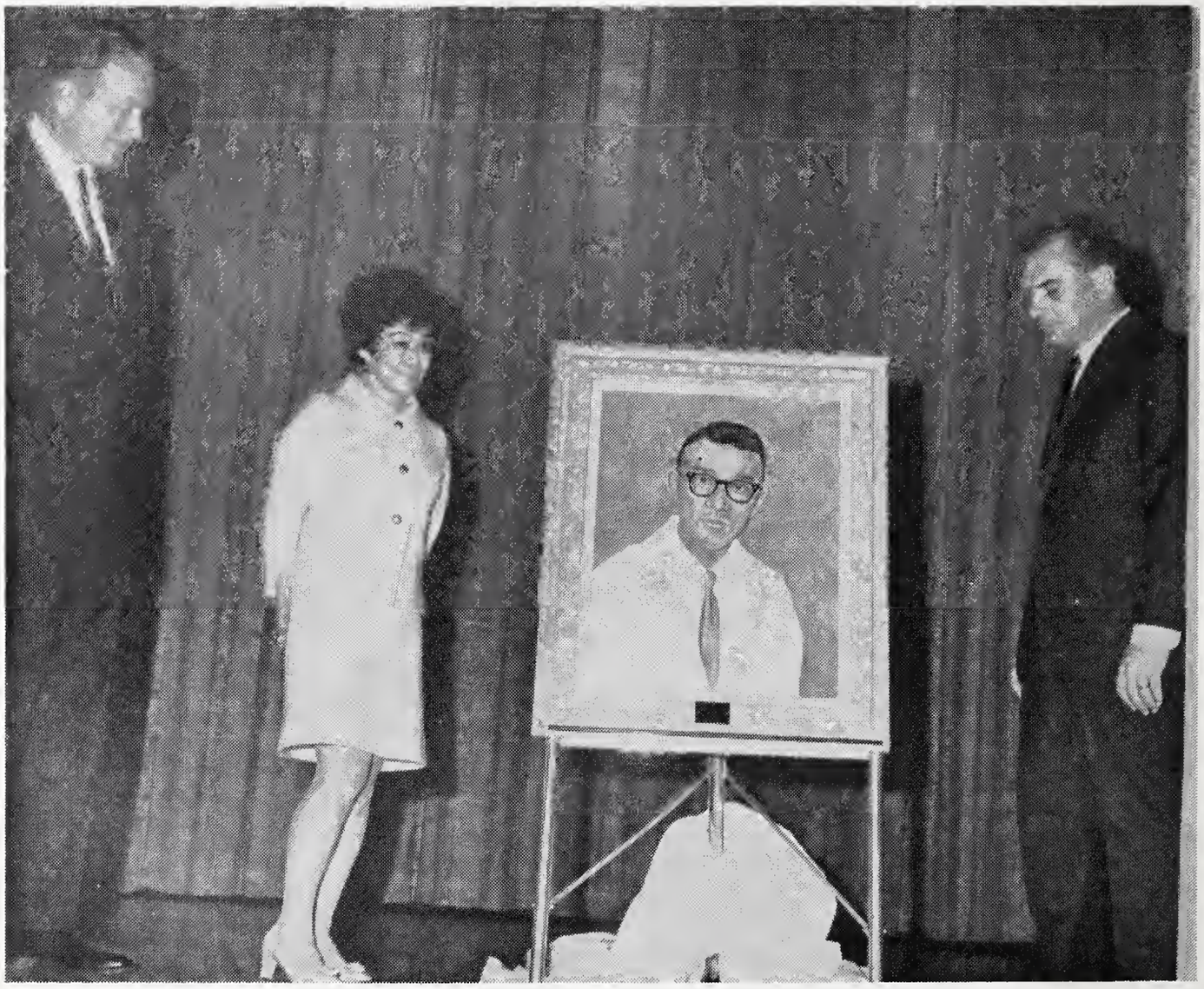
The subject about which I will talk is one which Dr. Hara had been interested in himself. He lived only a month after the initial cardiac transplantation was done in Cape Town by his

* From the Department of Surgery, University of Arkansas Medical Center, Little Rock, Arkansas 72201.

friend Christian Barnard. I am sure that he, himself, would have given much to have been a participant in this exciting era. On December 2, 1967, Christian Barnard performed the first cardiac transplantation in man. This was a successful operation, even though the patient died some 18 days later from penumonia. Since that initial effort in cardiac transplantation, there has been a surge of interest in clinical activity as well as investigative work in cardiac transplantation. We have witnessed within the past year performance of some 100 such operations. At first, this was a spectacular achievement and as time has gone by cardiac transplantation has been relegated to the back pages of the newspaper. This is as it should be because cardiac transplantation was not meant to be a circus event. It is a deliberate effort to save life or to prolong a life or to improve the quality of that life. Many of you are still having misgivings about the propriety and wisdom of doing cardiac transplantation. Therefore, I will present to you the program as it has been done at the St. Luke's Texas Children's Hospital as part of the Baylor University College of Medicine program. To begin, I'll show a movie which will illustrate the technique.

After presentation of a movie on human heart transplantation, Dr. Cooley reviewed his overall clinical experience in this area.

Dr. Cooley closed the lecture with these remarks: "In closing this report, I would like to say that cardiac transplantation is not simply an investigative method. I believe that it has therapeutic possibilities. We have encountered obstacles which we had predicted that we would encounter, but there are many things to be done in this field and perhaps we can ultimately control this rejection tendency. We must improve our methods in histocompatibility and we must improve our drug control in immunosuppression.



Left to right: Dr. Denton A. Cooley, Mrs. Hara, and artist, Jack Diner.

We must improve our methods of procurement of donors, and lastly, we must develop techniques of giving the heart mechanical support to assist through the cardiac transplantation program.

"Even though it looks as if we have only made a feeble start, in the old Chinese proverb it says, 'A trip of a thousand miles begins with the first step.'

"Now, we are here today to do honor to Professor Mas Hara, and if I may close by reciting a poem which I think typifies Dr. Hara. It is by an American poet named R. L. Sharp and it is entitled, 'A Bag of Tools'."

"A Bag of Tools"

Isn't it strange that princes and kings, and clowns that caper in sawdust rings, and common people like you and me, are builders for eternity.

Each is given a bag of tools, a shapeless mass, and a book of rules, and each must make 'ere life is flown, a stumbling block or a stepping stone.

A portrait of Dr. Hara was then presented to the University of Arkansas Medical Center Department of Surgery. The artist, Mr. Jack Diner, painted and donated this excellent portrait.

DR. GILBERT S. CAMPBELL: Mr. Diner, we thank you. To us it is a work of art produced as a labor of love. We are beholden to you.

Masauki Hara was born in San Rafael, California, on May 19, 1916. Shortly thereafter, his family moved to San Francisco where he attended public schools. He obtained his undergraduate and medical education at Stanford University, receiving the A.B. degree in 1938 and the M.D. degree in 1942.

On March 20, 1942, Dr. Hara married Mary Nobuko Kano in Reno, Nevada, as the Haras "thought we would start out where many couples end."

Dr. Hara interned at San Francisco County Hospital and served surgical residencies at St. Louis City Hospital and Barnard Free Skin and Cancer Hospital in St. Louis, Missouri. Dr. Hara joined the University of Arkansas Medical Center faculty in 1949 as an Instructor in Surgery. He was appointed Professor of Surgery in 1955. In 1957, Dr. Hara instituted the open heart surgery program in Arkansas and in 1964 he served as head surgeon for the kidney transplant program at the Medical Center.

He was a member of the Pulaski County and Arkansas Medical Societies, American College of Surgeons, Western Surgical Association, Society of Vascular Surgery, Sigma Xi, International Cardiovascular Society, Hodgen Club, American Society for Artificial Internal Organs, Arkansas Cancer Society and the Association of Tumor Clinic Staff Members in Arkansas.

Dr. Hara was named Arkansas Democrat Man of the Year in 1963. He was a Phi Beta Kappa and a member of Alpha Omega Alpha. In 1964, he received the St. Louis City Hospital Alumni Award for meritorious service. Some 50 research papers he authored were published in numerous scientific journals.

Dr. Hara died at his home at 23 Pine Manor Drive in Little Rock, Arkansas, on January 11, 1968. He is survived by his wife, who lives with the memories of the life she so heartily helped to fulfill, and two children, Kevin and Cheryl.

The 1968 Caduceus (the yearbook for University of Arkansas Medical Center) was dedicated to Dr. Hara. On its dedicatory page appears, "I have loved no darkness, Sophisticated no truth, Nursed no delusion, Allowed no fear."

Adverse Non-drug Reactions

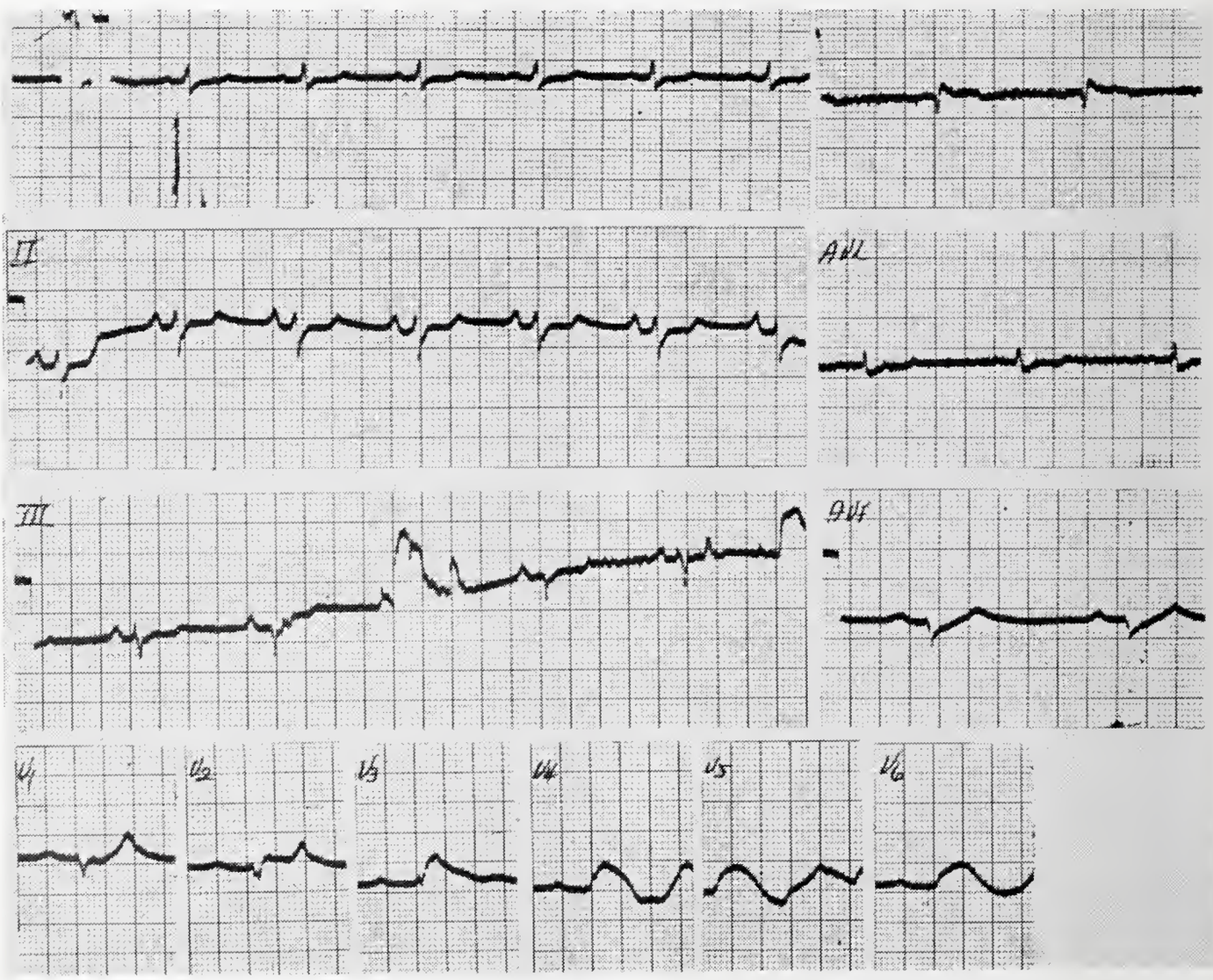
M. M. Reidenberg and D. T. Lowenthal (Temple Univ School of Medicine, Philadelphia)
New Eng J Med 279:678-679 (Sept 26) 1968

Healthy university students and hospital staff taking no medications were surveyed by questionnaire to obtain data on the occurrence of many symptoms often listed as side effects of drugs. Of 670 people surveyed, 414 indicated that they had had no illness and had taken no medications during the previous three days. Only 19% of the 414 stated that they had experienced none of 25 listed symptoms in the previous 72 hours. The median number of symptoms experienced per person was two; 30 people experienced six or more of these symptoms. In the study of adverse drug reactions proper controls are just as important as in any other form of reseach.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 65 SEX: Male BUILD: Slender BLOOD PRESSURE: 0/0
CARDIAC DIAGNOSIS: Arteriosclerotic heart disease.
OTHER DIAGNOSES: Terminal uremia; etiology unknown.
MEDICATION: None.
HISTORY: None available. Patient arrived in moribund condition.

See Answer on page 373

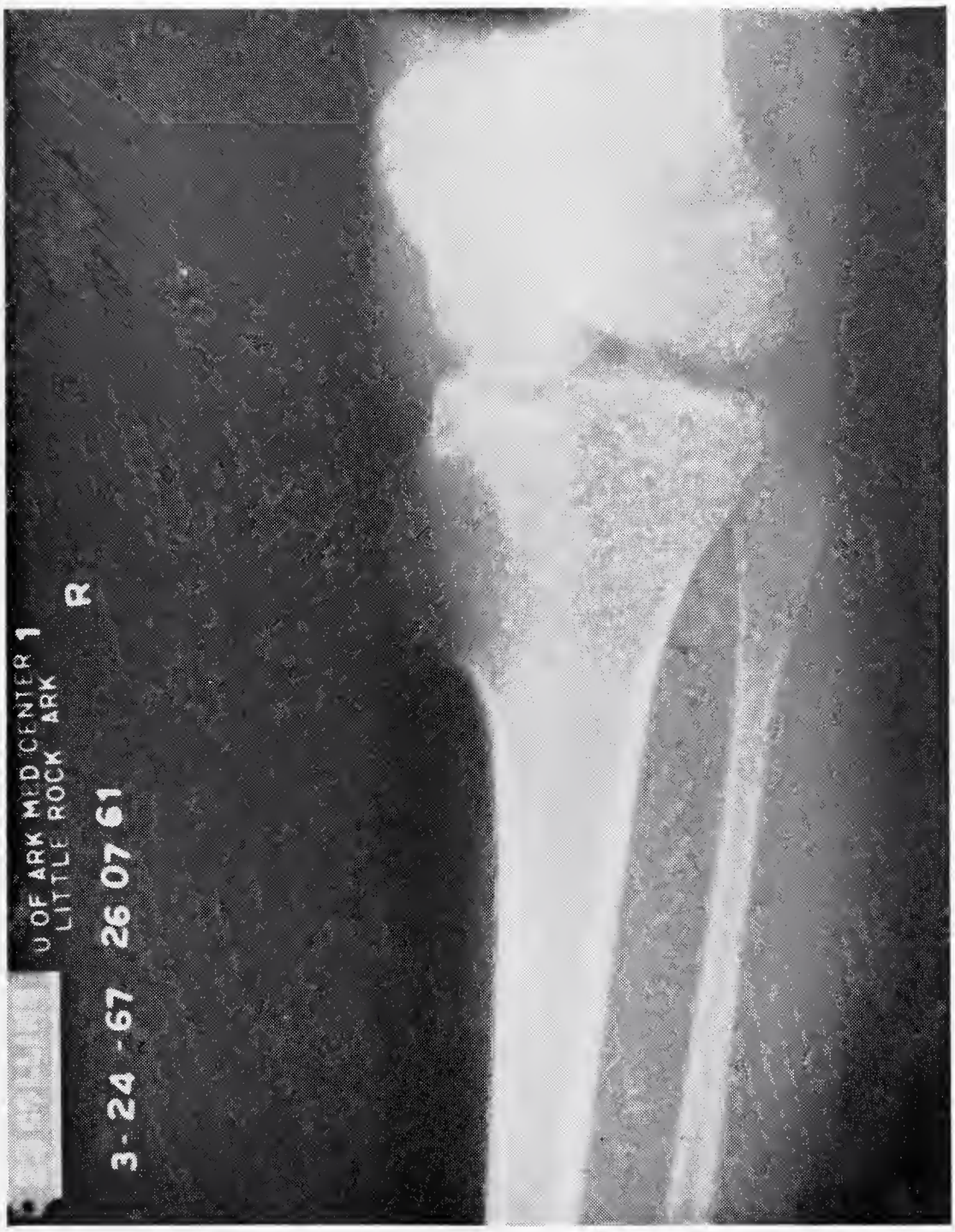


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

See Answer on page 373



HISTORY: 10-year-old boy with "knot" along the medial aspects of the right knee for several months.

PUBLIC HEALTH AT A GLANCE

Contact Dermatitis From Synthetic Resins*

Donald J. Firmingham, M.D.**

Many of the basic substances used in manufacture and later encountered in the fabrication of synthetic resins are primary irritants. Most contact dermatitis is caused by primary irritants, but some contact dermatitis arises from allergenic or sensitizing agents. Materials which act in this way usually fail to produce any observable effect on the skin for at least a week or more following initial or continued contact. During this period, however, changes are occurring within the skin which alter its capacity to react. As a result, when the skin becomes sufficiently sensitized by the chemical allergen, it reacts to that specific chemical—often explosively. Whether the reaction of human skin results from an irritant or a sensitizer, it is usually acutely inflammatory in nature. The involved skin becomes red and swollen, and has many small to large blisters which ooze and then crust. The acute phase of contact dermatitis is accompanied by varying degrees of burning and itching. The sites often involved are the backs of the hands, the inner aspects of the wrists, the inner bends of the elbows, eyelids, face, and neck. Sometimes the whole skin surface can be so affected. Any of these reactions can be induced by chemical dusts, fumes, vapors or liquids. As a rule, the eruption improves as soon as the patient is removed from the source; but it is obviously necessary to detect the causative agent and then further protect the patient against the substance when he returns to work.

Occupational contact dermatitis has been an accompaniment of synthetic resin manufacture from the onset of the industry. Most of the older resin system components as phenol, urea, hexamethylenetetramine, melamine, cashew nut shell liquid, and formaldehyde, among other raw materials, became well known dermatitis producers. Catalysts, plasticizers, among other additives, similarly, contributed to the problem in general. As each new resin was employed in an industrial plant, it provoked cases of occupational skin disease. Since 1950 the epoxy systems and the polyesters have caused many cases of dermatitis.

During the past 20 years while studying several of these outbreaks of dermatitis, it became unmistakable that the dermatitis potential of the resins lessened as the condensation or polymerization progressed to full or complete cure. In short, the greater the amount of unreacted components in the system the greater the chance of an ensuing skin reaction. Further proof of this was evidenced by extremely low frequency, if not total absence, of dermatitis among those who handled the finished resin. Finally, when the completely cured synthetic resins were marketed for use in the household or for wearing apparel or building materials or otherwise, they rarely caused cutaneous reactions.

It must be recognized, however, that during the same period there have been many valid clinical reports of allergic dermatitis caused by resinous consumer products. Most of these arose from contact with resin finishes in wearing apparel, plastic jewelry, plastic watch bands, an occasional household article, certain nail lacquers, and artificial nails. Despite these unexpected cases, the overwhelming majority of synthetic resin consumer products are substantially free of dermatitis producing action. Almost with-

*Presented under the auspices of The Industrial Division Speakers Bureau, The Soap and Detergent Association, at a regional technical conference of the Society of Plastic Engineers sponsored by the New York Section, New York City, Sept. 21, 1967.

**Professor, Department of Dermatology & Syphilology; Associate, Department of Occupational & Environmental Health, Wayne State University School of Medicine and of the Department of Dermatology, Detroit General Hospital.

out fail, when dermatitis does occur from a resinous consumer product it is caused by an incompletely cured resin ostensibly free of any toxic potential, e.g., improperly cured resin finish on fabrics.

The major problems, therefore, are still centered within the manufacturing plants where synthetic resins are handled. It is unnecessary to review the past dermatologic experience with the older systems, but it is wholly appropriate to cover some major points concerned with the newer resins, i.e., epoxy systems, polyesters and polyurethanes.

Epoxy Resins

Ever since their industrial application several years ago, the epoxy systems have caused a great deal of occupational dermatitis. Their versatility and easy application in no small way account for their wide usage. As a result, they are handled in many large and small plants requiring their use. The following components in epoxy systems possess well-known dermatologic potential:

1. The uncured, low molecular weight epoxy monomers.
2. The amine or anhydride catalysts.
3. Reactive diluents—glycidyl ethers, styrene, among others.
4. Plasticizers as dibutylthalate and tricresyl phosphate.
5. Resin additives as phenol urea and melamine formaldehydes.
6. Solvents—methyl, ethyl, ketone, xylene, etc.
7. Fiberglas.

All of these agents are capable of varying degrees of primary irritant action; but in addition, some of the epoxy monomers, the catalysts, the additive resins, and the plasticizers can act as allergic sensitizers. Skin exposure can occur while mixing the resin with the catalyst, during layup, potting or surface coating operations and while cleaning the tools. If reinforced fiberglas laminates are being made, drilling, grinding and sawing the solid laminates provides additional contact with fiberglas particles and resinous dusts. Contact dermatitis caused by glass fibers is not based on chemical irritation or allergic sensitization. It is purely the result of mild mechanical injury to skin induced by the glass spicules or dust. It induces itch which, in turn, leads to scratching and sometimes secondary infection. Most workers develop a tolerance to working with fiberglas.

Polyester Resins

The polyesters have attained widespread use in reinforced plastics. Essential materials encountered are:

1. Polyester resin.
2. Styrene modifier.
3. Organic peroxide catalysts.
4. Inhibitors.
5. Plasticizers.
6. Accelerators.
7. Solvents.
8. Fiberglas.

Dermatitis arises from the irritant action of the styrene modifier, from one or more of the peroxide catalysts, from the continued use of solvents or from tooling the glass laminates. Polyester systems have not caused as much allergic contact dermatitis as has been experienced with the epoxy resin systems. As with some epoxy operation, contact is provided during mixing, layup, tool cleaning and finishing the laminates.

The polyurethane resins contain several substances capable of injuring the skin, but the manufacture of foam occurs in a reasonably closed process. Dermatitis from polyurethanes has not been a problem.

Experience with the polyvinyl compounds has been good. Occasionally, a plasticizer or stabilizer has accounted for isolated cases of dermatitis.

Occupational dermatitis caused by synthetic resins is a recognizable disease. The appearance of the eruption and its distribution on favored sites of exposure as the backs of the hands, wrists, face, and neck, are classical and frequent accompaniments. These are the areas generally affected from contact with synthetic resins encountered at work. On the other hand, wearing a garment as a brassiere, girdle, dress, shirt, trousers or shorts may give rise to a dermatitis in those areas contacted by one of the above mentioned pieces of wearing apparel. In other words, the eruption usually makes its appearance at the site which has undergone greatest contact. The history will reveal the manner in which the dermatitis began, whether at work or otherwise. The physician with a broad knowledge of environmental contact agents is better able to establish meaningful correlation between the disease and the provoking material. If the disease is believed to be allergenic in nature, it may be

necessary to perform diagnostic patch tests to ascertain the specific allergen. When dealing with suspected dermatitis caused by resin systems such patch tests can be employed. These tests must be done by one possessing a knowledge of the substances being used for the tests. Irritant concentrations will injure the skin and provide no useful information. Nonirritant concentrations for patch testing with synthetic resin components have already been established by many workers in the field. Another aspect of patch testing which arises occasionally concerns the use of the pre-employment patch test. Many years it was advocated that individual intending to work in plants where allergenic agents would be encountered might be patch tested to see whether or not they were more susceptible to these chemicals. At first the idea seemed a simple method of weeding out those employees who were sensitive to the chemicals with which they would work. However, an individual does not react to a properly performed patch test unless he is sensitive to the test substance. Therefore, if one has never worked with these basic allergens, the likelihood of a positive pre-employment patch test is remote. Further, if an individual does not react to the patch test and is hired, this in no way precludes his developing allergic dermatitis from that substance at a later date.

Occupational dermatitis occurring in the manufacture of synthetic resins is preventable, but prevention requires the combined efforts of management, supervision and workmen.

1. All must be alerted to the hazards inherent in the operation and follow rigidly the means provided for eliminating contact with the dusts, fumes, or vapors.
2. Mixing, layup, potting, coating, laminating, and curing operations should be isolated and the areas provided with adequate ventilation control.
3. Disposable containers for mixing and disposable table and floor coverings diminish room contamination and make for ease of cleanliness.
4. Protective clothing as coveralls or aprons and gloves should be worn. Gloves can be made of Neoprene or plain rubber, worn over replaceable cotton liners. If gloves are not worn; disposable tools, e.g., brushes, spatulas and rollers, should be used.
5. Acetone, methyl, ethyl, ketone, naphtha, among other solvents, should not be used for washing the skin.
6. Clean-up rags should be replaced by disposable paper toweling.
7. Sawing, drilling, grinding and sanding of the fiberglas reinforced laminate should be performed in a well-ventilated booth.
8. Sulfonated oil soap or other neutral soaps are preferable to harsh or abrasive granulated cleaners.
9. Waterless cleaners at the work bench for ready removal of accidental spills are useful.
10. Well-maintained washrooms are absolutely necessary if personal cleanliness is to be maintained.

Synthetic resins, like many other chemicals handled in American industry, are well-known dermatitis producers. However, injury to the skin is not an inevitable accompaniment of working with synthetic resins. All of these occupational skin disorders are in large part preventable when plant management provides the means for cleanliness and the employees accept their responsibility for keeping clean.

RESOLUTIONS

WHEREAS, the recent death of an honored and respected member of this Society, Willis E. Brown, M.D., is recognized as an irreplaceable loss to this organization; and

WHEREAS, this loss is shared with the members of his family, the University of Arkansas Medical Center, the members of his staff and with countless physicians throughout the country who have benefited from his outstanding leadership; and

WHEREAS, Dr. Brown has brought honor upon the entire profession by his scientific contributions in his chosen specialty and by his unselfish devotion to the activities of this Society and other professional societies of international significance;

BE IT THEREFORE RESOLVED: That this resolution be made a part of the permanent records of this Society; and

That a copy of this resolution be forwarded to Dr. Brown's family as an expression of our

heartfelt sympathy; and

That the Journal of the Arkansas Medical Society be forwarded a copy of this resolution for publication.

By Action of the Memorials Committee
T. Duel Brown, M. D., Chairman
Henry Hollenberg, M.D.
Robert Watson, M.D.

Read and approved
Executive Committe
Pulaski County Medical Society
January 15, 1969

WHEREAS, the Members of the Pulaski County Medical Society, in an effort to express their sense of loss in the passing from this life of their friend and colleague, Calvin Jackson Dillaha, M.D., do pause with respect in his memory; and

WHEREAS, Dr. Dillaha in a few short years had distinguished himself by his outstanding contributions to his chosen field in such measures that are seldom attained in twice the period of time; and

WHEREAS, he brought honor to the medical profession, not limited to his own locality and state, but nationwide by his scientific contributions and by his devotion to the affairs of organized medicine; and

WHEREAS, Dr. Dillaha gave of himself to his community, his church and his alma mater in the same unselfish manner in which he gave of himself to the medical profession;

BE IT THEREFORE RESOLVED: That this resolution be made a part of the permanent archives of this Society; and

That a copy of this resolution be sent to the family of Dr. Dillaha as an expression of our sincere sympathy; and

That a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M. D., Chairman
Henry Hollenberg, M.D.
Robert Watson, M.D.

Read and approved
Executive Committe
January 15, 1969

WHEREAS, J. F. Williams has been a member of our Society for many years;

WHEREAS, we have known and loved J. F. Williams as a friend and associate and fellow practitioner of Medicine and Surgery;

WHEREAS, we have appreciated his professional help and skill in the practice of Medicine and Surgery, and his wise and friendly counsel in the conduct of Medical Society Affairs;

BE IT THEREFORE RESOLVED: That we are most deeply grieved over the loss of our friend and fellow doctor, and that the loss will be greatly felt by us and will be softened only by the passage of time.

BE IT FURTHER RESOLVED: That a copy of this Resolution be spread upon the minutes of these Societies, and that another copy be sent to his family.

Charles C. Smith, M.D.
Chairman of Resolutions Committee
Bowie-Miller County Medical Society

ANSWER—What's Your Diagnosis?

DIAGNOSIS:

Benign osteochondroma.

X-RAY FINDINGS:

The mediol portian af the tibiol metophysis and diophysis is widened but the bony cartex is intoct and trabecula extend fram the uninvolved bone into the moss.

ANSWER—Electrocardiogram of the Month

INTERPRETATION:
RATE: 75 RHYTHM: Sinus
P-R: Variable QRS: Variable Q-T: —

SIGNIFICANT ABNORMALITIES:

Progressian from narmal trocing in lead I ta terminal chonges in V_6.

INTERPRETATION: Abnormal

Terminal tracing showing ventricular fibrillotion.

COMMENT:

The chonges present suggest thot hyperkalemia was responsible for this terminal tracing shawing ventricular fibrillation.

EDITORIAL

Pancreas and Insulin

Alfred Kahn, Jr., M.D.

The favorite topic of endocrinologist, although less and less of a mystery, is diabetes mellitus. There is still a welter of new information in this field.

A significantly fine review of the pancreatic beta cell has been published by P. E. Lacy (New England Journal of Medicine, Volume 276, page 187, January 26, 1964). As the author points out diabetes may result from decreased beta cell reserve (the reservoirs of insulin; abnormalities in the formation, storage, release, and transport of insulin; or production of abnormal insulin). By electron microscopy, the beta cells internal anatomy has been studied. The most important factor from the point of view of diabetes is the study of beta granules which are the precursors of the blood insulin. The beta granules are formed in the ergastoplasm. By an unknown process the granules are surrounded by a thin sac. When the granules are released the sac moves to the cell membrane, fuses with it and then releases the granules into the extra cellular space as insulin. The "dissolved" insulin then must move through the capillaries into the blood stream; in all the soluble insulin must pass through about six anatomic structures before it can act on its target organ and it could be hindered at any point. Biochemical studies have identified some of the chemical activities in the beta cells; the enzymes concerned with glucose metabolism have been identified in beta cells; these enzymes are probably concerned with insulin secretions directly or indirectly. Insulin appears to be synthesized in the lamellar ergastoplasm. The chemical composition of the insulin is still under study but it is known to consist of two polypeptide chains which are linked by two disulfide bridges; there is a third disulfide bridge in the A chain. Insulin is stored as the granules in the beta cells. Insulin can be released from beta cells by various substances. Glucoses causes the release of large amounts of insulin mannose and galactose produce less.

In animals d-mannoheptulose inhibits insulin secretion. Tolbutamide stimulates insulin secretion. Glucogon stimulates insulin secretion. In juvenile diabetes mellitus the beta cells decrease in number. In adult onset type diabetes the beta cell are present in normal numbers; in some diabetics the islets are hyalized; in others there is glycogen infiltration; still others have leukocytic infiltration.

The study of insulin metabolism in conditions other than diabetes mellitus casts some oblique illumination on the general problem of diabetes. Kreisburg, Boshell, DiPlacido and Roddam have reported on insulin secretion in obesity (New England Journal of Medicine, Volume 276, page 314, February 9, 1967). Their studies "demonstrate that obese subjects have elevated plasma insulin levels and respond to glucose and tolbutamide with increased insulin secretion as compared to normal persons." The failure of obese diabetics to stay within normal limits during a glucose tolerance test despite high plasma insulin values suggests that their diabetes is not the result of insulin lack or beta cell disease; it suggests insulin resistance. Insulin resistance is postulated in obese persons with normal glucose tolerance tests, as they too have a high circulating insulin level. The mechanism of insulin resistance is unknown. Possibly a tissue antagonist, an immune reaction, high intra-cellular fat levels, etc.

Seltzer, Allen, Herron, and Brennan have reported on another abnormal facet of insulin activity in diabetes mellitus—delayed insulin release to a glycemic stimulus (Journal of Clinical Investigation, Volume 46, page 323, March, 1967). They found that controls of normal weight when challenged with glucose had a rapid rise in blood insulin whereas mild diabetics slowly put out small increases in insulin and moderate diabetics had almost no early rise in insulin output. Seltzer, et al., stress that these poor rises in blood insulin in response to glucose should not obscure the fact that diabetics have a higher circulating insulin to begin with. Obese non-diabetics did not show much different reactions from non-diabetics normal weight controls. Seltzer and his co-workers believe that the failure of insulin outpouring after glucose administration reflects a disorder in the beta cell itself.

In uremia there is a glucose intolerance; this subject has been studied and reported in Lancet (Volume 1 for 1967, page 462, March 4, 1967) by Briggs, Buchanan, Luke and McKiddie. Oral glucose tolerance tests were carried out on twelve uremic patients; the results showed elevated blood sugars as contrasted to fourteen controls. Plasma insulin levels were studied at the same time as the blood sugar samples were withdrawn. These uremic patients with abnormal glucose tolerance tests had normal plasma insulin levels. The authors suggest that there are some factors (or factor) which antagonize insulin in uremia; the degree of glucose intolerance seems to parallel the blood urea nitrogen level. The insulin antagonist seems to be a dialyzable substance. It is possible that the liver may be a factor in the glucose metabolic defect in uremia.

These studies of diabetes and insulin metabolism extend our knowledge in this area.

Bilateral Carotid Arteriography

H. Najafi et al (1725 W. Harrison St, Chicago)
Arch Surg 98:53-56 (Jan) 1969

Three hundred seventy-eight patients with cerebrovascular insufficiency were subjected to angiography. Percutaneous carotid arteriography under local anesthesia was the sole method of x-ray visualization in approximately 90% of the patients. Visualization of the proximal carotid and of the vertebral arteries was done in less than 10%. Patients with cerebral insufficiency are thoroughly examined before an arteriogram is done. The examination is carried out on a completely individualized basis, depending on the nature of the symptoms will usually negate the use of angiography except in patients who, in addition have intermittent cerebral deficit and signs of intracranial vascular disease. Entirely satisfactory relief of symptoms resulted from carotid artery reconstruction in 235 patients. It was rare that vertebral artery examination was needed in a patient following carotid surgery. Vertebrarterial surgery was needed only three times because of failure of carotid repair to relieve all symptoms.

Long-Term Catheterization of the Thoracic Duct in the Dog

A. W. Nelson and H. Swan (Surgical Lab, Colorado State Univ, Fort Collins)
Arch Surg 98:83-86 (Jan) 1969

A technique for long-term catheterization of the canine thoracic duct with intermittent lymph sampling is described. Three anatomic features of the thoracic duct (TD) were pertinent to its successful catheterization: occurrence of multiple communicating collateral branches near its termination; bifurcation in the main duct in the vicinity of the third to fifth thoracic vertebrae; and multiple lymphatic-to-venous connections in addition to the termination of the TD at the junction of the left jugular and axillary veins. Two problems that still harass this procedure are thrombus formation around the tip of the implanted catheter and blood contamination of the sampled lymph. The performance of thoracic duct catheters placed in nine dogs is presented. All catheters functioned well for at least two days, and five produced samples for four days or longer (mean 5.7 days). Three of the nine produced blood contaminated lymph (lymph PCV approximately 0.5).

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D. C.—A House Ways and Means Committee member introduced on the first day of the new Congress a bill that would provide federal income tax credits to help individuals buy private health insurance.

The legislation (HR 19), sponsored by Rep. Richard Fulton (D., Tenn.), was similar in principle to a health insurance financing plan utilizing tax credits approved by the American Medical Association House of Delegates at San Francisco last June and reaffirmed at Miami Beach last December.

Fulton said he considered his bill "at least an opener" for hearings.

"Certainly before expanding any federal program, I believe it worthwhile to explore the use of the private sector and our tax system," Fulton said.

The Fulton bill provides that individuals with incomes of $2,500 or less and families with incomes of $5,000 or less would receive $150 vouchers from the federal government per eligible individual for the purchase of health insurance. The family maximum would be $400.

In the case of a taxpayer with an income between $2,500.01 and $5,000, or a family with an income between $5,000.01 and $7,500, the credit would be 75 percent per eligible individual with a maximum of $400 per family.

In the case of a taxpayer with an income of $5,000.01 to $7,500, or a family with an income between $7,500.01 and $10,000, the credit would be 50 percent per eligible individual with a $400 family maximum.

In the case of a taxpayer with an income exceeding $7,500.01, or a family with an income exceeding $10,000.01, the credit would be 25 percent.

At San Francisco, the House of Delegates adopted as approved AMA policy "the principle of graduated income tax credits for premiums paid for adequate health insurance." A resolution adopted at Miami Beach called upon the AMA to "vigorously promote the enactment of federal legislation implementing" the plan.

* * *

A special commission on health facilities concluded that government and private enterprise must cooperate to organize the nation's health resources into effective, efficient and economical community systems of comprehensive health care for all persons.

The National Advisory Commission on Health Facilities, established in October, 1967, drafted its report to the President in general terms and did not make any recommendations for legislation.

James Z. Appel, M.D., a former president of the American Medical Association and a commission member, said the family physician would be the ideal "point of entry" to a community health system but there are not enough of them.

A summary of the report included:

"America's health care systems should combine private and public responsibility. Facilities and systems will vary from community to community in accordance with local capacities and local needs, but guiding principles should govern the effort to develop effective and efficient health care systems:

"1. These systems should be organized to assure appropriate points of entry into and continuity of health care services.

"2. Every citizen should have ready access to quality health care.

"3. States, regions, local communities, and all health institutions should carry out continuous planning.

"4. Both those who provide and consume health services should participate in the decisions.

"5. All levels of health care should be interdependent."

* * *

A Health, Education and Welfare Department

report to Congress recommended that preventive health care services not be added to medicare benefits at this time.

The report cited as reasons for the negative recommendation: administrative constraints, inability to estimate costs, limited experience with automated multi-phasic health screening, and an inadequate supply of health professionals.

The report was one of three requested by Congress last year and submitted before the change in Administration.

A second report dealt with coverage of mentally ill under medicare but did not include any recommendations.

The third reviewed qualifications of personnel under current medicare regulations. It stated that, because of an acute manpower shortage in the field, physical therapists should be considered qualified if they could establish an adequate level of competency. HEW is developing a proficiency examination.

HEW recommended against allowing licensed practical nurses to serve as nurses responsible for the total nursing care at an extended care facility. It also recommended against changes in the regulations that set minimal standards for independent laboratory personnel.

* * *

The premium rate for medicare supplementary insurance covering physicians' fees (plan B) will remain at the present rate, $4 each for the individual beneficiary and the federal government, until July 1, 1970.

The Johnson Administration's Secretary of Health, Education and Welfare, Wilbur J. Cohen, decided against an increase although the Social Security Administration's chief actuary had advised that an anticipated rise in physicians' fees called for an increase of 40 cents each for the beneficiary and the government.

Cohen again asked physicians to show "unusual restraint" in setting fees. He urged that physicians and patients cooperate "in eliminating unnecessary utilization of physicians' services," and asked carriers and intermediaries to carefully review claims during the next 18 months.

* * *

The Food and Drug Administration proposed that six widely prescribed antibiotic drug combinations be taken off the market on grounds that they fail to live up to their claims of effectiveness.

The drugs and their manufacturers: Albamycin G. U., Albamycin-T capsules and granules, and Panalba capsules, granules and drops—Upjohn Co.; Achromycin nasal suspension—Lederle Laboratories; Mysteclin F capsules, syrup and pediatric drops and Mysteclin F-125 capsules—E. R. Squibb & Sons, Inc.

The drug companies were given 30 days to respond before FDA's final action. The FDA order could be appealed to the courts.

Two of the drug companies promptly protested the FDA proposal in public comments. An Upjohn spokesman said his company's combinations are superior to the major constituents alone. A Squibb spokesman said Mysteclin F had wide acceptance among physicians and a proper place in medical practice. A Lederle spokesman said Achromycin was not a major sales product, and declined to comment on what the company's official response would be.

The Little Rock University Board of Trustees has granted approval to offer baccalaureate degrees in the following allied health fields:

1. Bachelor of Science in Environmental Health.
2. Bachelor of Science in Dental Hygiene. This program is offered in cooperation with the University of Arkansas School of Dental Hygiene.
3. Bachelor of Science in Physical Therapy. Little Rock University has been accepted by The Mayo Clinic School of Physical Therapy as a cooperating institution in a three-year pre-physical therapy curriculum. In this program, the student receives credit for a fourth year of college and is awarded a degree upon completing an approved certificate course in physical therapy such as that offered by Mayo Clinic.

Questions concerning the first three years of the program should be directed to the Chairman, Division of Biological Science, Little Rock University, 33rd and University Avenue, Little Rock, Arkansas 72204. Application materials and information about the professional phase of the program may be obtained from the director of the School of Physical Therapy to which the student plans to make application.

THINGS TO COME

On May 2, 1969, the Arkansas State Board of Nursing will present a Symposium at the Robinson Auditorium, Little Rock, on the "Implications and Responsibilities of Licensure." "The Legal Aspects of Nursing" will be discussed by Mr. Nathan Hershey, Research Professor of Health Law, University of Pittsburgh; "Use and Misuse of Drugs" will be discussed by Dr. Kenneth Godfrey, Principal Investigator, LSD and Intensive Psychotherapy, Veterans Administration Hospital, Topeka, Kansas, and Instructor, Menninger School of Psychiatry; and Mrs. Jimmie F. Poplar, R.N., Director of Nursing Service, Federal Reformatory for Women, Alderson, West Virginia, will speak on the subject "The Nurse and Drugs."

* * *

The Arkansas Caduceus Club plans a New York reception. In making your plans for the AMA Annual Session in New York, include a stop at the first annual hospitality hour of THE ARKANSAS CADUCEUS CLUB for all graduates of the University of Arkansas School of Medicine, former house officers, faculty members and Arkansas physicians. Time, date and room number in the Americana Hotel will be announced later.

* * *

The South Central Association of Blood Banks will hold its 11th Annual Meeting March 20-22, 1969, at the Fontainebleau Motel, New Orleans, Louisiana.

* * *

The Arkansas and Oklahoma Divisions of the American Cancer Society are sponsoring a physicians' forum on the various sites of cancer, according to Arthur F. Hoge, Jr., M.D., Arkansas Chairman for the activity.

"This will be the first intensive scientific professional education activity sponsored jointly by the two Divisions of the American Cancer Society," Doctor Hoge said. "We plan to make it an annual program to assist in keeping our Arkansas and Oklahoma physicians abreast with the advances made in the diagnosis and treatment of cancer. Many breakthroughs are coming from our research laboratories, and we want our physicians versed in the latest and most effective treatment known."

The course has been approved by the American Academy of General Practice for six (elective) hours.

The meeting will be held at Arrowhead Lodge, Lake Eufaula (south Canadian) Friday and Saturday, April 11 and 12, 1969. It is open to all physicians. There is no registration charge. There will be a planned luncheon Friday, with a social hour and dinner Friday evening. Additional information may be obtained by contacting Arthur F. Hoge, Jr., M.D., American Cancer Society, Arkansas Division, Inc., 4938 West Markham, P. O. Box 7121, Little Rock, Arkansas 72205, or Adolph N. Vammen, M.D., American Cancer Society, Oklahoma Division, Inc., 1312 N.W. 24th Street, Oklahoma City, Oklahoma 73106.

OBITUARY

Dr. Grady Watterson Reagan, a retired Little Rock physician who specialized in Urology, died February 12, 1969, at the age of 77. He graduated from the University of Arkansas School of Medicine in 1918. He was president of the Pulaski County Medical Society in 1942, served as a volunteer on the staff of the University of Arkansas School of Medicine for 42 years and was at one time chief of the surgical staff of the Arkansas Baptist Medical Center. He was a member of the Pulaski County and Arkansas Medical Societies, the American Medical Association, Albert Pike Masonic Lodge 714, Arkansas Consistory, and Scimitar Shrine Temple. Survivors include his wife, Mrs. Lessie May Vail Reagan, a son, Dr. Watt Reagan of Los Angeles, two brothers, and a sister.

* * *

Dr. Elmer J. Munn of El Dorado died January 9, 1969. Dr. Munn moved to El Dorado around 1925. Born November 16, 1896, he was the son of Dr. J. B. and Susan Kirby Munn. He was a member of the Academy of General Practice, a lifetime member of the Southern Medical Association, and a member of the American Medical Association. He was a veteran of World War I and was a member of the First United Methodist Church, the El Dorado Rotary Club, and the Union County Medical Society. Survivors include his widow, Mrs. Lovey Nobles Munn, one son, and three grandchildren.

PERSONAL AND NEWS ITEMS

Little Rock Physician Volunteers Services

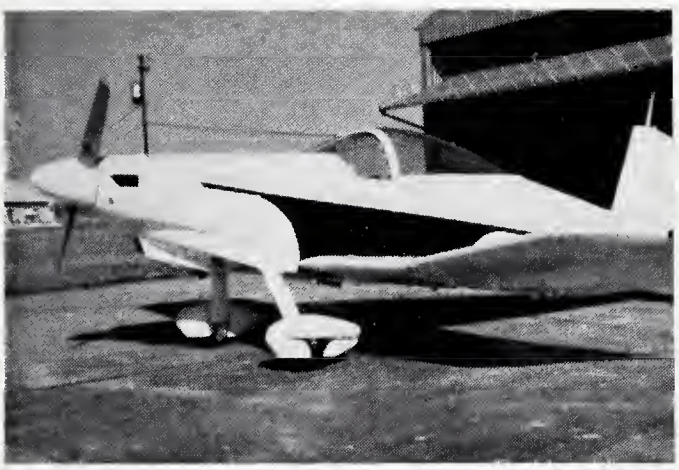
Approximately three years ago, Dr. Millard Black heard about the Union Rescue Mission in Little Rock, which is an institution to care for male transients, considered society's dregs by many agencies dealing in such matters. He has since started a clinic for this Mission, contributing his time and service to treating these people.

Dr. Blackwell Becomes Member

Dr. Banks Blackwell of Pine Bluff recently became a member of the American Academy of Orthopaedic Surgeons.

Physician Constructs Airplane

Dr. George Burton of El Dorado, formerly a member of the Council of the Arkansas Medical Society, and long-time aviation enthusiast, has developed his interest in flying to a high degree.



For two years his spare time has been spent in the construction of a two-place, low-wing airplane. It is of all metal construction and is designed to do over 135 miles an hour using a 135 horsepower engine. The accompanying picture shows the completed plane. All work was done by Dr. Burton. It carries an experimental FAA designation.

Physicians Represent Speakers Bureau

Dr. Wayne Workman of Blytheville spoke to the Osceola High School on February 5th; Dr. Harold H. Mings of Fort Smith spoke to the Booneville Rotary Club on February 15th; and Dr. Donald Chambers of Fort Smith was the speaker for the Northside High School Paramedical Club on March 6th.

New Doctor Joins Gravette Medical Center

Dr. Roger Knapp is now affiliated with the Gravette Medical Center. He is a graduate of Texas Tech and received his medical degree from the Tulane University at New Orleans.

Dr. Bailey Elected

At the annual meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society (The Triological Society) held in January at Sea Island, Georgia, Dr. Ted Bailey of Little Rock was elected as President for 1969. Dr. Bailey will be in charge of determining the site for the 1970 meeting, arranging the program for that meeting, and presiding during the meeting.

Officers Elected

Recently elected officers of the Fifth Councilor District Medical Society are Dr. Ronald M. Lewis of El Dorado, president; Dr. Evan Houston of Magnolia, vice president; Dr. J. H. Miller of Camden, secretary.

Dr. Eisele Appointed

Dr. Martin Eisele of Hot Springs was recently appointed to a 10-year term on the Arkansas Industrial Development Commission by Governor Rockefeller.

New Associate for Warren Clinic

Dr. George W. Warren of Smackover has announced the association of Dr. John F. Whitehorn of Memphis, Tennessee, in the practice of medicine at Warren Clinic.

Dr. Snider Appointed to Welfare Board

Dr. James R. Snider, a radiologist with the Holt-Krock Clinic in Fort Smith, was recently appointed to the Board for the Arkansas Department of Public Welfare.

County Medical Societies Elect New Officers

The Jefferson County Medical Society elected Dr. Walter J. Wilkins, Jr., president; Dr. Henry A. Crane, Jr., president-elect, and Dr. John Crenshaw, secretary-treasurer. The physicians are all from Pine Bluff.

The Columbia County Medical Society elected the following Magnolia physicians as their new officers: Dr. C. L. Weber, president; Dr. Scott McMahen, vice president, and Dr. C. H. Weber, secretary-treasurer.

Dr. John Grasse of Calico Rock was elected president of the Baxter County Medical Society. Dr. Robert Kerr of Mountain Home was elected vice president and Dr. Ben N. Saltzman was re-elected secretary. Dr. John W. Sneed of Mountain Home was elected delegate to the State Medical Society and Dr. John Guenthner of Mountain Home was named alternate delegate.

Sparks Hospital Executive Committee Meets

Dr. Morton Wilson was recently elected Chief of Staff of Sparks Memorial Hospital in Fort Smith. Dr. J. B. Thompson was named Chief of Staff-elect and Dr. William F. Turner was elected Secretary of the Executive Committee. Sectional Chiefs for 1969 are Dr. Boyd Saviers, Surgery; Dr. Louis O. Lambiotte, Medicine; Dr. T. A. Feild, General Practice; Dr. W. P. Phillips, Obstetrics, and Dr. Charles H. Floyd, Pediatrics.

Dr. McNichol Is Speaker

Dr. R. W. McNichol, clinical director of alcoholic treatment services at the Rehabilitation Center at Benton, was the speaker recently at the midwinter board of the Woman's Auxiliary to the Arkansas Medical Society.

Dr. Pence Named Delegate

Dr. Eldon D. Pence, Jr., of Fort Smith, delegate from the Arkansas Society of Internal Medicine, attended a regional meeting of the American Society of Internal Medicine held in Scottsdale, Arizona, in February.

Dr. Trieschmann Presented Award

Dr. John W. Trieschmann, a Hot Springs pediatrician, was recently presented the Jaycee Distinguished Service Award as the city's Outstanding Young Man of 1968. This award is presented annually by the Jaycees to a Hot Springs resident between the ages of 21 and 35 who has excelled in leadership and community service.

Physicians Elected

Dr. Bob Banister was recently elected chief of staff at Memorial Hospital, Conway. Dr. Robert L. Clark was named vice chief and Dr. Ann Poindexter, secretary. Chiefs of services are Dr. Robert L. Taylor, medicine; Dr. Douglas A. Poindexter, surgery; Dr. Robert B. Benafield, obstetrics; Dr. Fred Gordy, Jr., anesthesia; Dr. J. W. Campbell of Little Rock, radiology, and Dr. Robert Burger of Little Rock, pathology.

Dr. Goldstein Retires

Dr. Davis W. Goldstein of Fort Smith announced his retirement from the practice of Dermatology effective February 1, 1969.

Dr. Bradford Is Guest Speaker

Dr. Calvin Bradford of Fort Smith spoke on the subject "Cutaneous Signs of Internal Disease" at the Fort Smith Clinical Society's meeting held in January.

Dr. Baldwin Named Consultant

Dr. Ronald Baldwin of Magnolia was selected recently by the American Academy of Pediatrics to serve as a Head Start consultant in Arkansas.

Dr. Lushbaugh To Be Installed

Dr. Harmon E. Lushbaugh of Fayetteville will be installed as a Fellow of The American College of Obstetricians and Gynecologists at its Annual Meeting, April 28-May 1 in Bal Harbour, Florida.

Dr. Kirkley and Dr. King Appointed

Governor Rockefeller recently announced the appointment of Dr. John B. Kirkley of Jonesboro and Dr. W. E. King of Russellville to four-year terms on the State Board of Health.

Lincoln County Submits First Annual Report

Dr. Richard C. Petty, secretary of the Lincoln County Medical Society, submitted the first annual secretary's report for 1969; Dr. F. S. Dozier, secretary of the Lee County Medical Society submitted the second report, and the third report received was from Dr. W. C. Whaley, secretary of the Bradley County Medical Society.

BOOK REVIEWS

ALCOHOL AND THE IMPAIRED DRIVER, Committee on Medicolegal Problems, illustrated, pp. 234, published by The American Medical Association, Chicago, 1968.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis and Respiratory Disease Association

TREATMENT OF DISSEMINATED MYCOTIC INFECTIONS

Amphotericin B was administered in low daily doses over a ten-week period in the treatment of patients with histoplasmosis, blastomycosis, and cryptococcosis. Results are encouraging, and suggest new guidelines for amphotericin therapy.

In an effort to avoid the toxic side effects of therapy with amphotericin B, a new approach to its administration has been tried in the treatment of such mycotic infections as histoplasmosis, cryptococcosis, and blastomycosis. It is based on giving the drug in smaller daily doses and over longer periods of time than is usually employed.

With the objective of attaining daily peak serum levels of amphotericin B at least twice those necessary for *in vitro* inhibition of the infecting fungus, serial amphotericin B serum level determinations were used as guidelines to the daily drug dosage of each patient. Frequent monitoring of the serum levels provided an objective means for regulation of daily dosage and permitted modification of dosage if associated illnesses complicated the situation or renal function declined.

Fifteen patients with histoplasmosis, blastomycosis, or cryptococcosis were treated by this method. Amphotericin B was administered daily in gradually increasing doses until the desired peak had been reached. The dose was infused slowly over a four-to-six-hour period. Heparin was routinely added to each infusion to prevent phlebitis. Blood for serum level determinations was obtained from 45 minutes to an hour following completion of the daily infusion. Peak serum levels persisted for six to eight hours and remained stable when a constant daily dose was established. Sensitivity tests were made regularly.

OTHER DISORDERS

Five patients had histoplasmosis, three had blastomycosis, and seven had cryptococcosis. All had disseminated disease except for two of the cryptococcosis patients. Eleven had diabetes mellitus but did not take insulin. One patient with histoplasmosis had underlying lympholeukosarcoma and another was receiving adrenal corticosteroid therapy for rheumatoid arthritis. One patient was receiving steroid therapy for sarcoidosis. Other medical problems included Addison's disease in two patients; a seizure disorder and rheumatic mitral valvular prosthesis in one; mild azotemia in four; and congestive heart failure was a complicating factor in four.

Acute toxic reactions were rare. When they did occur, it was at a time when the daily amphotericin B doses were increased or the daily infusion was delivered rapidly.

Eleven of the patients are alive and have been free of infection for periods ranging from eight to 45 months after a single 10-week course of amphotericin B therapy. Two patients with histoplasmosis have died of myocardial infarction, one during therapy and the other three months after completion of treatment. A third patient was killed in Viet Nam more than two years after successful treatment of extensive pulmonary cryptococcosis. The fourth patient who died had histoplasmosis and was the only one retreated. Postmortem examination revealed widespread lymphosarcoma and pulmonary nocardiosis but no evidence of active histoplasmosis.

RESULTS SATISFACTORY

Results achieved with most of the patients indicate that mycotic infections may be treated successfully with relatively small daily doses of amphotericin B and without predetermined goals for total drug dosage. Monitoring of the serum level of amphotericin B provided a guideline whereby daily dosage could be governed by the sensitivity of the infecting fungus and changes in renal function.

Although the goal of achieving a daily peak serum concentration of amphotericin B at least

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David J. Drutz, M.D.; Anderson Spickard, M.D.; David E. Rogers, M.D.; and M. Glenn Koenig, M.D. *The American Journal of Medicine*, September, 1968.

twice that required for inhibition of the fungus *in vitro* was arbitrary, it was thought that such levels might suppress the infecting fungus and allow host defense mechanisms to control the infection. Experience in treating subacute bacterial endocarditis and tuberculosis had indicated that the duration of therapy was of greater importance than attainment of maximum drug serum levels or specific total drug doses.

The desirability of determining the amphotericin B sensitivity of the pathogenic yeast phase was recognized in the biphasic histoplasma and blastomyces organisms. However, because of various problems, the less fastidious mycelial phase was used in sensitivity tests.

Serum levels in this study were higher than those usually reported for amphotericin B. With drug doses approaching 1 mg. per kg. of body weight a day, serum levels reached 6.3 μg. per ml. in one patient. In the one patient who received 1.5 mg. per kg. per day, a level of 12.5 μg. per ml. was recorded.

The question has been raised of the possibility of the development of drug resistance with prolonged use of amphotericin B in relatively small doses. However, on the basis of other studies on fungal resistance to amphotericin B, it appears unlikely that fungi resistant to the drug will be a hazard in the regimen discussed.

The relative freedom observed in this study from such acute toxic side effects of amphotericin B as nausea, vomiting, and fever has not been reported in other studies. The most important factor in this decrease in side effects is believed to have been the small daily doses of amphotericin B used.

TOXICITY

However, the regimen did not prevent other toxic manifestations. Phlebitis was common and necessitated the prophylactic use of heparin in each infusion. Hypokalemia developed in a third of the patients, and renal function became impaired in each one during the course of treatment. The subsequent return of renal function after completion of therapy suggests that the degree of permanent renal damage resulting from amphotericin B administration is a function of the total dose administered. Thus, the present treatment regimen may produce less permanent impairment of renal function than other regimens have.

Anemia was another occurrence and red cell aplasia developed in two patients during therapy, but red cell production returned to normal after amphotericin B therapy.

On the whole, the therapeutic results with this regimen have been encouraging. The laboratory studies involved are simple and easily taught to technicians with minimal mycological training. The approach provides a rational basis for dosage and duration of amphotericin B therapy and allows treatment of patients with impaired renal function and other severe underlying medical disorders.

Alterations of Fibrinolysis and Blood Coagulation Induced by Exercise, and the Role of Beta-Adrenergic Receptor Stimulation

R. J. Cohen et al (Walter Reed Army Institute of Research, Washington, DC)

Lancet 2:1264-1266 (Dec. 14) 1968

The response of the fibrinolytic and blood coagulation systems to intense tread-mill exercise and the role of the beta-adrenergic receptors in mediating this response were studied in five healthy volunteers. On one day, placebo, and on another, the beta-adrenergic blocking agent, propranolol, was administered before exercise. Exercise significantly enhanced fibrinolysis, primarily because of increased plasminogen activation. Exercise also caused factor VIII increases of two to four times the resting values. No significant changes were noted in any other coagulation factors. The administration of propranolol did not affect enhanced fibrinolysis and plasminogen activation but did prevent the increase in factor VIII. While exercise seems to increase factor VIII activity by beta-receptor stimulation, this is not responsible for the increase in fibrinolysis.

ANNUAL MEETING PROGRAM

April 27 – 30, 1969 Hot Springs

CONVENTION OFFICIALS

GENERAL CHAIRMAN: Joseph L. Rosenzweig, M.D., Hot Springs

PROGRAM COMMITTEE:

John McCollough Smith, M.D., Little Rock

Art B. Martin, M.D., Fort Smith

Joseph S. Robinette, M.D., Pine Bluff

Betty Ann Lowe, M.D., Texarkana

A. S. Koenig, M.D., Fort Smith

Wright Hawkins, M.D., Fort Smith

E. Z. Hornberger, M.D., Fort Smith

J. Harry Hayes, Jr., M.D., Little Rock

Amail Chudy, M.D., North Little Rock

John W. Lane, M.D., Little Rock

SCIENTIFIC EXHIBITS: Charles W. Logan, M.D., Little Rock, Chairman
J. Harry Hayes, M.D., Little Rock, Co-Chairman

GOLF TOURNAMENT CHAIRMAN: W. G. Klugh, Jr., M.D., Hot Springs

MEMORIAL SERVICE CHAIRMAN: A. C. Bradford, M.D., Fort Smith

Digest of Events

REGISTRATION

The registration desk will be located on the Mezzanine of the Arlington Hotel and will be open as follows:

Sunday, April 27	8:00 A.M. to 5:00 P.M.
Monday, April 28	8:00 A.M. to 5:00 P.M.
Tuesday, April 29	8:00 A.M. to 5:00 P.M.
Wednesday, April 30	8:00 A.M. to 12:00 Noon

Registration cards and badges will be prepared in advance for the officers of the Arkansas Medical Society and for the county society delegates. Delegates are requested to present credentials in proper form when registering.

All members and visitors are required to register, as admission to all sessions will be by badge only. Bring your 1969 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

There will be no registration fee. Purchase of tickets for social functions will be optional.

TELEPHONE SERVICE

A special convention telephone will be installed at the Society's registration desk. The telephone number will be 624-5600. Give this number to your office personnel so that they may contact you in case of an emergency.

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society will meet as follows:

Sunday, April 27	10:00 A.M.
Monday, April 28	7:30 A.M.
Tuesday, April 29	7:30 A.M.
Wednesday, April 30	9:00 A.M.
Wednesday, April 30	Immediately following the adjournment of the House of Delegates (Brief re-organizational meeting and group photograph of new officers)

The voting members of the Council are: The councilors, the president, the first vice president, president-elect, secretary and treasurer. The speaker, vice speaker, and past presidents are members ex-officio without vote.

HOUSE OF DELEGATES

The opening session of the House of Delegates of the Arkansas Medical Society will be called to order at 1:00 P.M. on Sunday, April 27, in Room "C" of the Conference Center, Arlington Hotel.

The closing session and election of officers will begin at 10:00 A.M. on Wednesday, April 30, in the same room.

All items of business will be referred by the Speaker of the House of Delegates to three reference committees. Open hearings on all resolutions and reports will begin at 3:30 P.M. on Sunday, April 27. Any member of the Arkansas Medical Society is welcome to attend the meetings of the reference committees and to express his views on the various reports, resolutions, etc. After the open hearings, the reference committees will go into executive session for the purpose of preparing reports and recommendations to the House of Delegates.

A constitutional amendment adopted at the last convention requires that all items of business to be considered by the House must either be printed in the March issue of the Journal or submitted to the headquarters office in writing twenty days prior to the meeting. Any new business proposed during sessions of the House must have two-thirds vote of attending delegates for introduction.

SCIENTIFIC SESSIONS

The scientific program of the annual meeting will be presented on Monday and until noon on Tuesday. Distinguished speakers from various medical centers across the Nation will present lectures on Monday. The Tuesday morning program will be presented by the staff of the Communicable Disease Center, United States Public Health Service, Atlanta. All convention visitors enter the lecture hall through the exhibit area.

Section and specialty group meetings will be held on Tuesday afternoon. The Association of Tumor Clinic Staff Members in Arkansas will hold a luncheon meeting on Monday.

The Arkansas Academy of General Practice will sponsor the Tuesday afternoon program by the Communicable Disease Center. The American Academy of Pediatrics and the Arkansas Component of the American Society of Internal Medicine will join the Academy of General Practice for the afternoon program.

The complete program for the annual meeting begins on page 387.

TECHNICAL AND SCIENTIFIC EXHIBITS

Thirty-eight displays by firms whose products and services are of interest to Arkansas physicians will be housed in the Conference Center of the Hotel on the Mezzanine floor level.

In addition, there will be twenty-four scientific and institutional exhibits in the adjacent area of the Conference Center. A complete list of the scientific and technical exhibits appears on pages 393, 394 and 395. Exhibit hours are from 8:00 A.M. to 5:00 P.M. on Monday and Tuesday and from 8:00 A.M. to 11:00 A.M. on Wednesday.

FREE COFFEE

The Arkansas State Medical Assistants Society will serve coffee in the exhibit area of the Conference Center. Members are urged to visit the medical assistants for a cup of coffee and discussion of the medical assistants' organization.

GOLF TOURNAMENT

The Golf Tournament will be held at the Hot Springs Country Club. Dr. Walter G. Klugh, Jr., of Hot Springs is chairman of the Golf Tournament Committee. Members may play anytime Sunday, Monday and Tuesday. There will

be 18 holes to play; entrance fee will be $2.00 per person. Prizes will be given at the banquet on Tuesday evening.

Dr. Klugh urges members to bring their golf clubs and participate in the tournament.

FIFTY YEAR CLUB BREAKFAST

The Society will host a breakfast for members of the Fifty Year Club at 7:30 A.M. on Tuesday, April 29, in Cafe 2 of the Arlington Hotel. Members of the Fifty Year Club may make a reservation for the breakfast at the Society's convention registration desk.

PAST PRESIDENT'S BREAKFAST

The traditional breakfast for former presidents of the Arkansas Medical Society will be held at 7:30 A.M. on Wednesday, April 30, in Cafe 2 of the Arlington Hotel.

AUXILIARY MEETING

The Woman's Auxiliary to the Arkansas Medical Society will hold its annual meeting April 27-29 in the Arlington Hotel. General meetings will be held in the Tower Suite on the Mezzanine level (Venus Room). Registration will begin at 2:30 P.M. on Sunday. See page 390 for program outline.

MEMORIAL SERVICE

A joint Society-Auxiliary Memorial Service will be held on Tuesday morning, April 29, at 11:30 A.M. in the Ballroom of the Arlington Hotel.

MONDAY EVENING PARTY

An outing at Majestic Lodge on Lake Hamilton is planned for Monday evening. A social hour beginning at 6:00 P.M. will be followed by a Barbecue Buffet Dinner. Activities at the Lodge include shuffleboard, badminton, horseshoe pitching, table tennis, fishing and boating from the 80-foot dock, coin-operated jukebox for dancing. Members are encouraged to arrive early to enjoy the many facilities.

TUESDAY EVENING COCKTAIL PARTY

A cocktail party will precede the Inaugural Banquet on Tuesday evening. The party will be held at pool side if weather permits. Tickets will be on sale at the convention registration desk.

PRESIDENT'S INAUGURAL BANQUET

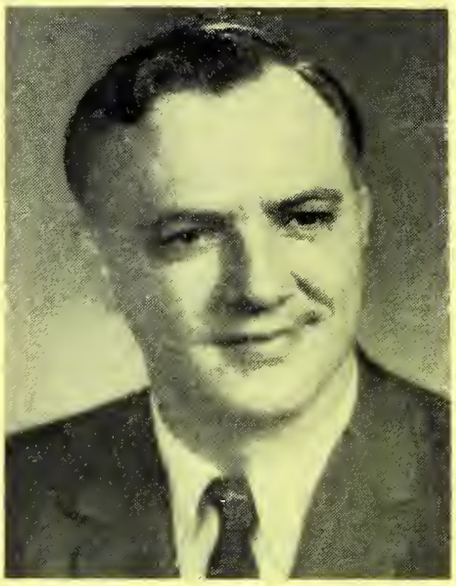
The social highlight of the 1969 annual session will be the President's Inaugural Banquet on Tuesday evening, April 29, in the Crystal Ballroom of the Arlington Hotel. A delicious buffet dinner will be served, beginning at 7:00 P.M.

Following dinner, Dr. Ross Fowler of Harrison will be inaugurated as president of the Society.

Entertainment will be musical and song parodies by members of the Garland County Medical Society and Auxiliary.

Tickets for the dinner will be available at the registration desk.

Distinguished Guest Speakers



GORDON B. McFARLAND, JR., M.D.
Director, The Mary S. Sherman Laboratory of
Bone and Joint Pathology
Alton Ochsner Medical Foundation
New Orleans, Louisiana

JOSEPH SONG, M.D.
Chief Pathologist and Director of
Laboratories, Mercy Hospital
Des Maines, Iowa

(Photos Not Available)

ROBERT J. BROCKHURST, M.D.
Retina Associates
Boston, Massachusetts

JOHN L. OCHSNER, M.D.
Dept. of General Surgery, Ochsner Clinic
New Orleans, Louisiana

W. LEONARD DRAPER, M.D.
Medical Center
Ear, Nose and Throat Associates
Houston, Texas

ORMOND S. CULP, M.D.
Head, Section of Urology, Mayo Clinic
Rochester Minnesota

W. R. ROCKWELL, M.D.
Associate Professor, Dept. of Obstetrics
and Gynecology, University of Kansas
Medical Center, Kansas City, Kansas

Scientific Program

Monday Morning, April 28, 1969

Room "C," Conference Center
Arlington Hotel
(enter through exhibit area)

Harry Hayes, M.D., Little Rock, First Vice President, Presiding

8:30 A.M. Film: "Hospital Sepsis—A Communicable Disease"

9:00 A.M. "Facts and Fancies Regarding Anomalies of Male Genitalia"
Ormond Culp, M.D.

9:30 A.M. "Radiation Therapy and Ovarian Carcinoma"
W. R. Rockwell, M.D.

10:00 A.M. "Arterial Reconstruction Below the Knee"
John L. Ochsner, M.D.

10:30 A.M. INTERMISSION — Visit Exhibits

11:00 A.M. "The Vitreous Hemorrhage Problem"
Robert J. Brockhurst, M.D.

11:30 A.M. "The Care of the Painful Hand"
Gordon B. McFarland, Jr., M.D.

Monday Afternoon, April 28, 1969

Room "C," Conference Center

Charles F. Wilkins, Jr., Russellville, Second Vice President, Presiding

1:30 P.M. "Surgical Treatment of Complications of Coronary Artery Disease"
John L. Ochsner, M.D.

2:00 P.M. "The Patient With Sinus Trouble"
W. Leonard Draper, M.D.

2:30 P.M. INTERMISSION — Visit Exhibits

3:00 P.M. "The Emergency Management of Massive Trauma"
Gordon B. McFarland, Jr., M.D.

3:30 P.M. "Usefulness of Endometrial Curetting in Abnormal Bleeding"
Joseph Song, M.D.

4:00 P.M. "Misconceptions Concerning the Prostate"
Ormond Culp, M.D.

Tuesday Morning, April 29, 1969

Room "C," Conference Center

Guy U. Robinson, M.D., Dumas, Third Vice President, Presiding

8:30 A.M. Film: "Reconditioning of Coronary Prone and Coronary Stricken Subjects"

9:00 A.M. Viral Disease Symposium by Communicable Disease Center

Related Meetings

ASSOCIATION OF TUMOR CLINIC STAFF MEMBERS IN ARKANSAS

The Association of Tumor Clinic Staff Members in Arkansas will meet in the Fountain Room of the Arlington Hotel on Monday, April 28, from 12:15 to 1:45 P.M. for a luncheon, business session and scientific program. Paul L. Mahoney Jr., M.D., Associate Chairman, will preside.

Joseph Song, M.D., Chief Pathologist and Director of Laboratories, Mercy Hospital, Des Moines, Iowa, will speak on "Equivocal Hystologic Lesions of the Cervix."

ORTHOPEDICS

The Orthopedic Section will meet for a luncheon beginning at 12:00 Noon on Tuesday, April 29, in the Arlington. A business meeting and scientific program will follow the luncheon, with Gordon B. McFarland, Jr., M.D., as guest speaker. Dr. McFarland will discuss "Pre- and Post-Operative Management of Hand Injuries."

ANESTHESIOLOGY

The Anesthesiology Section will meet at 4:00 P.M. on Tuesday, April 29, in the Arlington for a scientific program. Cecil W. Shafer, Professor of Anesthesiology, University of Louisville School of Medicine, Louisville, Kentucky, will be guest speaker.

RADIOLOGY

The Arkansas Radiological Society will meet on Tuesday, April 29, in the Arlington. A luncheon beginning at 12:00 Noon will be followed by a business session and scientific program.

UROLOGY

The Urology Section will meet at 12:15 P.M. on Tuesday, April 29, in the Arlington. A business session and scientific program will follow the luncheon. Guest speaker will be Ormond C. Culp, M.D., of Mayo Clinic.

SURGERY

A luncheon will be held in the Arlington on Tuesday, April 29, for round table discussions of designated surgical topics. The luncheon will begin at 12:15 P.M. and all interested physicians are urged to attend. Members may sign up for the luncheon and select topic of choice at convention registration desk.

PEDIATRICS

The Arkansas Chapter of the American Academy of Pediatrics will have a luncheon and business meeting on Tuesday, April 29, from 12:00 to 2:00 P.M. in the Arlington.

At 2:00 P.M. the pediatricians will join the general practitioners and internists for a meeting in Room "C" of the Conference Center. The program will be presented by the staff of the Communicable Disease Center in Atlanta.

INTERNAL MEDICINE

The Arkansas Component of the American Society of Internal Medicine will have a luncheon and business meeting on Tuesday, April 29, from 12:00 to 2:00 P.M. in the Arlington.

At 2:00 P.M. the internists will join the pediatricians and general practitioners for a meeting in Room "C" of the Conference Center. The program will be presented by the staff of the Communicable Disease Center in Atlanta.

GENERAL PRACTICE

The Arkansas Academy of General Practice will sponsor a seminar from 2:00 P.M. to 4:00 P.M. on Tuesday, April 29, in Room "C" of the Conference Center, Arlington Hotel. The program will be presented by the staff of the Communicable Disease Center in Atlanta. All interested physicians are invited to attend.

E.E.N.T.

The Eye, Ear, Nose and Throat Section will meet all day on Tuesday, April 29, in the Arlington Hotel.

W. Leonard Draper, M.D., of Boston will discuss "Secretory Otitis Media in Children."

Forrest Henry, M.D., of Little Rock will discuss "Setting Up the Eye Bank."

Robert J. Brockhurst, M.D., will present talks on "A Practical Approach to Uveitis" and "Controversial Aspects of Modern Retinal Detachment Surgery."

Woman's Auxiliary

The 45th Annual Session of the Woman's Auxiliary to the Arkansas Medical Society will be held April 27, 28 and 29, 1969, in the Arlington Hotel, Hot Springs, Arkansas. Mrs. Louis K. Hundley of Little Rock is Convention Chairman. Following is a summary of convention activities planned.

Sunday, April 27

2:30 P.M. to 5:00 P.M. Registration, Arlington Hotel

3:00 P.M. to 4:30 P.M. Rehearsal of Past Presidents for skit in Main Dining Room of Arlington Hotel

Monday, April 28

8:30 A.M. Pre-Convention Board Breakfast

9:30 A.M. Opening General Session, Venus Room
Introduction of Guests
Adoption of Minutes
Reports of Board, Officers and Committee Chairmen
Election of Nominating Committee
Election of Delegates and Alternates to the 1969 AMA Convention

12:30 P.M. Luncheon in Main Dining Room of Arlington Hotel, honoring Mrs. C. C. Long, Jr., President, Woman's Auxiliary to the American Medical Association.
Hostess Auxiliary: Washington County, Mrs. LeMon Clark, President
Fashion Fun Skit, "From Drums to Guitar," will be presented by the past presidents of the Woman's Auxiliary to the Arkansas Medical Society, and featuring guest appearances by members of the Arkansas Medical Society. All doctors who do not plan to attend other sessions at this time are cordially invited to attend this luncheon.

Tuesday, April 29

8:00 A.M. Past President's Breakfast, Mrs. James Branch, Hostess

9:30 A.M. Second General Session, Venus Room
Reports of County Presidents
Report of Nominating Committee
Election of Officers

11:30 A.M. Joint Memorial Service with Arkansas Medical Society Ballroom of the Arlington Hotel

1:00 P.M. Luncheon (Place to Be Announced)
Arrangements: Woman's Auxiliary to the Garland County Medical Society, Mrs. John Trieschmann, President
Introduction of County Presidents
Presentation of Doctor's Day Awards
Installation of Officers
President's Message

2:30 P.M. Post Convention Board Meeting and School of Information

Memorial Service

Joint Society-Auxiliary Service, Ballroom, Arlington Hotel

11:30 A.M., Tuesday, April 29

Presiding: H. W. Thomas, M.D., President, Arkansas Medical Society

Invocation: Art B. Martin, M.D., Fort Smith

Reading of names of deceased members of the Society: Dr. Thomas

Reading of names of deceased members of the Auxiliary: Mrs. C. D. Burroughs, President, Woman's Auxiliary to the Arkansas Medical Society

Soloist: E. Z. Hornberger, M.D., Fort Smith

Organist: Mrs. L. A. Whittaker, Fort Smith

Memorial Address: A. C. Bradford, M.D., Fort Smith

Benediction: Dr. Martin

IN MEMORIAM

Willis E. Brown, M.D., Little Rock

Charles T. Chamberlain, M.D., Fort Smith

Jan W. Crow, M.D., Jacksonville

Calvin J. Dillaha, M.D., Little Rock

S. A. Drennen, M.D., Stuttgart

T. S. Hare, M.D., Crawfordsville

James Donald Hayes, M.D., Little Rock

Frank L. Irby, M.D., El Dorado

W. W. Jackson, M. D., Hot Springs

A. C. Linton, M.D., Hector

E. J. Munn, M.D., El Dorado

Grady W. Reagan, M.D., Little Rock

Horace E. Ruff, M.D., Magnolia

J. F. Williams, M.D., Texarkana

House of Delegates Meetings

FIRST MEETING

1:00 P.M., Sunday, April 27, 1969

Room "C," Conference Center, Arlington Hotel

J. P. Price, Jr., M. D., Speaker of the House of Delegates, Presiding

1. Call to Order
2. Roll Call of Delegates
3. Report of Credentials Committee
4. Introduction of Guests
   Mrs. C. C. Long, Jr., Ozark, President, Woman's Auxiliary to the American Medical Association
   Mrs. C. D. Burroughs, Pine Bluff, President, Woman's Auxiliary to the Arkansas Medical Society
   Mrs. Carl Parkerson, Hot Springs, President-elect, Woman's Auxiliary to the Arkansas Medical Society
   Representative of the Arkansas State Nurses' Association
5. Address by President of the Arkansas Medical Society, H. W. Thomas, M.D., Dermott.
6. Adoption of minutes of the 92nd Annual Session, as published in the June 1968 issue of the Journal of the Arkansas Medical Society.
7. Adoption of minutes of the special session of the House held December 15, 1968, as published in the February 1969 issue of the Journal of the Arkansas Medical Society.
8. Report from Chairman of the Council, T. E. Townsend, M.D., on meetings held since publication of annual report of Council in March issue of Journal of the Arkansas Medical Society.

9. Reports of Committees
   Reports as published in March Journal may be amended by Committee Chairman. All reports will be referred to the Reference Committee.
10. New Business
11. Selection of Nominating Committee
12. Adjournment

FINAL MEETING

10:00 A.M., Wednesday, April 30, 1969

Room "C," Conference Center

1. Call to Order
2. Report of Nominating Committee
3. Election of Officers:
   President-elect
   First Vice President
   Second Vice President
   Third Vice President
   Treasurer
   Secretary
   Speaker of the House of Delegates
   Vice Speaker of the House of Delegates
   Councilors (one from each of the ten councilor districts)
   Councilors whose terms expire are:
   1. Eldon Fairley, M.D., Osceola
   2. Paul Gray, M.D., Batesville
   3. Paul Millar, M.D., Stuttgart
   4. T. E. Townsend, M.D., Pine Bluff
   5. Kenneth R. Duzan, M.D., El Dorado
   6. Karlton H. Kemp, M.D., Texarkana
   7. Jack W. Kennedy, M.D., Arkadelphia
   8. W. Payton Kolb, M.D., Little Rock
   9. Stanley Applegate, M.D., Springdale
   10. C. C. Long, M.D., Ozark

   Delegate to the American Medical Association House of Delegates (Term of Jack W. Kennedy, M.D., expires December 31, 1969)

   Alternate Delegate to the American Medical Association House of Delegates (Term of Purcell Smith, Jr., M.D., expires December 31, 1969)
4. Election to fill vacancies on State Boards
5. Reports of Reference Committees
6. Supplemental Report of Council
7. Selection of Place for 1971 Annual Session
8. Adjournment

REFERENCE COMMITTEES

Reference Committees appointed by the Speaker of the House of Delegates will hold open hearings to discuss the committee reports published in the March Journal, as well as any supplemental reports and resolutions referred to them during the first meeting of the House of Delegates on Sunday, April 27. All members are urged to participate in the discussion at the meetings. The committees will meet at 3:30 P.M. on Sunday, April 27, in the Arlington Hotel. Members of the committees are:

Reference Committee No. 1:

James M. Kolb, Sr., M.D., Clarksville, Chairman
G. Thomas Jansen, M.D., Little Rock
Robert M. Bransford, M.D., Texarkana
Ross Maynard, M.D., Pine Bluff

Reference Committee No. 2:

Winston K. Shorey, M.D., Little Rock, Chairman
James D. Rankin, M.D., Hamburg
Paul Sizemore, M.D., Magnolia
John Trieschmann, M.D., Hot Springs

Reference Committee No. 3:

James R. Morrison, M.D., Little Rock, Chairman
A. W. Lazenby, M.D., Dumas
George F. Wynne, M.D., Warren
Roy I. Millard, M.D., Russellville

STATE BOARD VACANCY

Arkansas State Medical Board

A vacancy occurs in the Second Congressional District, the counties of which are listed below. Members from these counties are urged to meet in the Arlington Hotel immediately following adjournment of the House of Delegates meeting on Sunday, April 27, to vote for nominees. Nominations should be reported to the convention registration desk.

Counties in District: Cleburne, Fulton, Independence, Izard, Jackson, Lawrence, Monroe, Prairie, Randolph, Sharp, Stone, White, and Woodruff.

Present Member: Hugh R. Edwards, M.D., Searcy, term expires December 31, 1969, eligible for re-appointment.

Scientific Exhibits

The scientific exhibits will be located in the Mezzanine Lobby area and the area of the Conference Center adjacent to the technical exhibits. All members are urged to visit the exhibits as they are an integral part of the program.

The following exhibits will be on display:

Gilbert S. Campbell, M.D., Department of Surgery,
University of Arkansas Medical Center
"Kidney Transplantation in Humans at the University of Arkansas Medical Center"

Harry Hayes, M.D., Little Rock
"Management of Cancer of the Face"

Stevenson Flanigan, M.D.
University of Arkansas Medical Center
"Congenital Dysraphia"

James R. Morrison, M.D., Radiology Department,
St. Vincent Infirmary, Little Rock
"Renovascular Hypertension"

Ellery C. Gay, Jr., M.D., Little Rock
W. Sexton Lewis, M.D.
Little Rock Diagnostic Clinic, Little Rock
"Selective Coronary Ateriography"

John V. Satterfield, M.D., Little Rock
H. Austin Grimes, M.D., and Leighton Millard, M.D.
Little Rock Orthopedic Clinic, Little Rock
"Gamekeepers Thumb"

Carl L. Williams, M.D.
Fort Smith Surgical Clinic, Fort Smith
"Angiography in Trauma"

Dale Alford, M.D., Little Rock
"Strabismus Unlimited"

Morton C. Wilson, M.D., and Carl L. Wilson, M.D.
Holt-Krock Clinic, Fort Smith
"Long Term Management of the Female Pseudohermaphrodite"

James T. Parsons, M.D., Houston, Texas
"Advances in Cardiovascular Surgery"

William B. Harrell, M.D., Texarkana
"Simulated Tuboplasty Using Tissue Adhesive on Uterine Horn in Dog"

D. B. Stough, III, M.D., Hot Springs
"Complications of Hair Transplantation" and
"Medical Silicone in Dermo-Facial Defects"

Carol L. Van Dalsem, Director of Information
Arkansas Regional Medical Program
"Regional Medical Library Program"

John E. Allen, Jr., M.D., and John D. McCracken, M.D.
Little Rock Surgery Clinic
"Myocardial Revascularization"

G. Allen Robinson, M.D., Harrison
"Milestones in Medicine 1919-1969"

A. J. Brizzolara, M.D., Little Rock

W. Duane Jones, M.D., Arkansas Tuberculosis Sanatorium

C. S. Nevill, Administrator, Arkansas Children's Hospital
"Arkansas Children's Hospital"

Erwin Witkin, M.D., Bureau of Health Insurance,
Social Security Administration Department of Health,
Education and Welfare
"Medicare Program"

Robert Matthews, M.D., University of Arkansas
Medical Center
"Postgraduate Psychiatry in Arkansas"

Miss Neil Kelly, Reference Librarian,
University of Arkansas Medical Center
"The Medlars Services of the National Library of Medicine"

L. D. Kerr, Information Director,
Department of Education, Rehabilitation Service
"Vocational Rehabilitation Helps the Handicapped Become Productive Citizens"

Woman's Auxiliary to the Arkansas Medical Society
"AMA-ERF"

Technical Exhibits

The business firms who purchase exhibit space at our Annual Session contribute a great deal to the financing, as well as to the educational aspects, of the meeting. The number of visits to the technical exhibits is the only criteria by which these companies can judge the value they receive from the investment in booth rental, displays, and employee's time. You will be rewarded for the time you spend visiting the exhibits. Following are descriptions of displays to be featured.

RATHER, BEYER AND HARPER, AGENTS

Representatives of Rather, Beyer and Harper will have brochures and all information on the Arkansas Medical Society group plans of insurance—specifically the Income Protection Plan, the Office Overhead Expense Plan and the new Million Dollar Professional Liability Policy. Records will be available so that each doctor may review the insurance coverages which he has under the group plans of the Arkansas Medical Society.

CIBA PHARMACEUTICAL COMPANY

CIBA Pharmaceutical Company, Summit, New Jersey. CIBA Professional Service Representatives will be pleased to discuss Ser-Ap-Es.

PARKE-DAVIS & COMPANY

Parke-Davis is proud of more than a century of service to the medical profession. Our representatives consider it a pleasure to contribute to the success of your meeting. They will be present to discuss the quality products from Parke-Davis and welcome your comments on inquiry.

WARNER-CHILCOTT LABORATORIES

Your Warner-Chilcott representatives cordially invite the members of the Arkansas Medical Society to see and discuss "what's new" at Warner-Chilcott's booth.

WILLIAM P. POYTHRESS & COMPANY, INC.

The Poythress exhibit will feature Trocinate, a unique direct-acting (musculotropic) antispasmodic drug, and the Mudrane combinations, established Poythress products for relief of bronchial asthma. Solfoton, Solfo-Serpine, Panolgesic and Synirin will also be featured. Your requests for literature and professional trial quantities are cordially invited.

WINTHROP LABORATORIES

Winthrop Laboratories cordially invites you to visit their booth where they will feature TALWIN (R) Oral, brand of Pentazocine (as hydrochloride).

MEAD JOHNSON LABORATORIES

The Mead Johnson Laboratories exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about Vasodilan, Oracon, Spar Cal and Enfamil.

MERCK SHARP & DOHME

The Merck Sharp & Dohme exhibit has been designed to supplement the physician's therapeutic armamentarium. Technically trained personnel are present to discuss the scope and variety of services offered.

A. H. ROBINS COMPANY

You are cordially invited to visit the A. H. Robins display and meet our representatives who will welcome the opportunity to discuss products of interest with you. Recent new product releases are DOPRAM INJECTABLE (doxapram hydrochloride), REPOISE maleate (butraperazine maleate), SULLA (sulfameter) and TYBATRAN (tybamate).

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display where we are featuring Mellaril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with codeine. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

BILL SHORT MOTORS

Visit the Bill Short Motors booth and view a Mercedes-Benz. Our representatives will be on hand to discuss the features of the automobile with you.

WILLIAM T. STOVER, INC.

The William T. Stover Company, Inc., Little Rock, will have a booth staffed with informed and qualified representatives—eager to welcome you and assist in any manner possible—as well as to show you the up-to-date developments in the medical and surgical industry.

THE UPJOHN COMPANY

Professional representatives of The Upjohn Company are eager to contribute to the success of your meeting. They are here to discuss products of Upjohn research designed to assist you in the practice of your profession. They welcome your inquiries and comments.

AMERICAN MEDICAL BUILDING GUILD

American Medical Building Guild specializes in the turnkey design and construction of medical and dental buildings. They offer assistance in land selection and financing. This exhibit is staffed by qualified architectural representatives to answer preliminary questions relating to building problems.

ARKANSAS BLUE CROSS AND BLUE SHIELD, INC.

Our booth is for your convenience and we welcome your visit. Blue Cross-Blue Shield's representatives are always ready to help solve any case problem or answer your questions. Our association with the medical profession has been largely responsible for our growth in membership which now totals over 300,000—an achievement of which we should all be proud.

ABBOTT LABORATORIES

Abbott Laboratories will feature Maltsupex (R), a nutritive food concentrate derived from the natural enzymatic digestion of barley, achieves its natural laxative action by encouraging and maintaining an ideal fecal pH. Also Normosol (R) solutions, modern successors to normal saline and dextrose solutions, providing physiologic concentration of the principal ions of normal plasma.

ELI LILLY AND COMPANY

You are cordially invited to visit the Lilly exhibit. Our sales representatives in attendance welcome your questions about Lilly pharmaceuticals. You may be particularly interested in discussing LORIDINE (TM) Cephaloridine.

SCHERING LABORATORIES

Schering Laboratories invite you to visit their exhibit where their representatives will be available to discuss with you any questions you may have on any Schering products.

ORTHO PHARMACEUTICAL CORPORATION

Ortho is proud to present the most complete line of

medically accepted products for control of conception and the treatment of vaginitis.

STUART DIVISION, ATLAS CHEMICAL INDUSTRIES, INC.

A cordial invitation is extended to all members and guests attending this meeting to visit the Stuart Division booth. Trained representatives will be in attendance to answer your questions on our products: DIALOSE (R), DIALOSE (R) PLUS, MULVIDREN (R), MULVIDREN (R)-F, MYLANTA (R), MYLICON (R), STUART PRENATAL (R), STUART PRENATAL (R) w/FOLIC ACID, and SORBITRATE (R).

DABBS SULLIVAN, TRULOCK AND COMPANY, INC.

Dabbs Sullivan, Trulock and Company, Inc., will be represented by Melvin Spear who will be happy to answer your questions on securities and assist you in establishing a sound investment program. Brochures will be available.

KAY SURGICAL, INC.

The Kay Surgical booth will feature the new Hamilton examining suite. A cordial invitation is extended to all members to visit with our representatives.

SMITH, KLINE AND FRENCH LABORATORIES

Representatives will be on hand to answer your specific questions and provide information on their products and services.

ASTRA PHARMACEUTICAL PRODUCTS, INC.

Information and descriptive literature pertaining to Xylocaine (R) (lidocaine) and Citanest (R) (prilocaine) local and topical anesthetics, and iron preparations Astrafer (R) (dextriferron) for intravenous use and Jectofer (R) (iron sorbitex) for intramuscular administation will be available at the Astra booth.

SMITH, MILLER AND PATCH, INC.

Smith, Miller and Patch, Inc., will feature KONDREMUL, our specialty bowel regulator for the geriatric patient; our hematinic tablets, Vitron-C and Vitron-C Plus; the new hynotic, Somnafac; and some ophthalmic products for ocular conditions encountered in General Practice.

ASR MEDICAL INDUSTRIES

ASR Sterisharps Surgical blades, Lukens Sutures and New ASR Procedure Trays—Now! ASR means more new products, packaging innovations—new ideas. ASR Medical Industries more new ways to serve you better. Visit with ASR—Let us tell you all about it.

AUTOMATED MANAGEMENT SYSTEMS

Our exhibit will display the various computer forms and management reports that are received by our A.M.S. doctor clients. Automated Management Systems handles the doctor's accounts receivable in a professional manner. It gives the doctor more time for patients, time for more patients and frees him and the office of burdensome nonmedical detail. The A.M.S. plan was designed specifically for the medical profession. As a doctor client of A.M.S., no capital investment is made, although millions of dollars worth of electronic computers and equipment are required at the processing centers.

AYERST LABORATORIES

Ayerst Laboratories extends an invitation to visit our exhibit. Our representatives will be pleased to discuss Ayerst products with you.

SHERWOOD MEDICAL INDUSTRIES, INC.

Sherwood's exhibit will feature physician examining room furniture. An examining room table, instrument cabinet, waste receptacle, and stool will be included. This represents the first showing of our 2nd Century line of physician equipment in the State of Arkansas.

E. R. SQUIBB AND SONS

Members of the medical profession who search for better agents to prevent and treat disease are eager to learn of new products and improvement in products. Since therapeutic advances are constantly being introduced to the professional market, much valuable product information is available. Your inquiries about the latest results of our research will be welcomed.

G. D. SEARLE & CO.

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Features will be information on Ovulen-21, Enovid, Aldactazide, Flagyl, Lomotil, Pro-Banthine and other drugs of interest.

PFIZER LABORATORIES

Professional Service Representatives from Pfizer Laboratories will be pleased to have you in attendance at their booth to discuss the latest products of Pfizer Research.

PROGRAMMED LEARNING, INC.

Engaged in one of the Nation's most dynamic industries—Programmed Education. The firm makes available to professional men as well as to students on all levels—the most dramatic advance in the remedial and developmental reading field—the automated speed reading pacer. This is a scientifically-proven device which enables individuals to double and even triple their reading speed in as little as thirty days.

HERBERT COX CORRECT SHOES, INC.

Herbert Cox Correct Shoes, Inc., now one location only: Park Plaza Shopping Center, Little Rock, Arkansas 72205. Exhibiting shoes as tools to the medical profession. Shoes for children and adults, useful to the orthopedist, pediatrician, internist, general practitioner and others. Arkansas' oldest and most complete retailer of orthopedic merchandise.

CUMMINGS X-RAY COMPANY

We will show in our booth the new Auto-Therm, a revolutionary new short-wave Diathermy, providing all the advantages of short wave, yet easier to use than microwave. We will also show the new G-5 Unique Roto-Vibro-Percussive Apparatus, the latest in X-ray E.K.G. and Physiotherapy equipment. We will introduce the "3M" Company's new X-ray film by "Ferrania-Cenco," and our Cummix Brand of Developer and Fixer at reduced price.

BRISTOL LABORATORIES

Bristol Laboratories' exhibit features POLYCILLIN (ampicillin trihydrate). This member of the Bristol family of synthetic penicillins is the first oral penicillin bactericidal against a significant number of Gram-negative and full spectrum of penicillin G-sensitive Gram-positive pathogens.

MOUNTAIN VALLEY MINERAL WATER COMPANY

Mountain Valley Mineral Water Company will have water coolers with Mountain Valley water at the coffee bar. Stop by for a drink of cool Mountain Valley water.

House of Delegates Business Affairs

The following proposed amendment to the Constitution was approved by the House of Delegates during the 1968 meeting. It will be presented to the House of Delegates for final vote at the meeting on Sunday afternoon, April 27.

Amend Chapter 1, Section 4, paragraph 1-a; delete paragraph 1-a and substitute:

"An active member who has attained his seventieth year, and has been an active member of the Arkansas Medical Society for a minimum of ten years, and upon recommendation of his county medical society, shall be granted the status of life member. Such a member shall enjoy full membership privileges and shall be exempt from the payment of further dues and assessments."

* * *

Reports printed below are brought to the attention of individual members and the county medical societies. The items reported here represent those received in time for publication in advance of the meeting. All reports will be referred to reference committees and members are urged to attend the open hearings of the reference committees to express their views. Reference Committee hearings are scheduled for 3:30 P.M. on Sunday, April 27.

ANNUAL COMMITTEE REPORTS

Committee on Public Health (Rural Health)

Ben N. Saltzman, M.D., Chairman

The Committee on Rural Health has been active this past year in sponsoring resolutions that have been approved and in some cases implemented by the actions of the Council and the House of Delegates of the Arkansas Medical Society. The Arkansas Medical Society has approved resolutions urging the upgrading of Rural Emergency Medical Services, the use of Home Health Care Services, the extension of Health Manpower to rural communities, and the Slow Moving Vehicle Emblem use in the state.

In addition, the Committee on Rural Health has worked towards the establishment of a committee on Emergency Medical Services and hopes to see some action before this year is over. The Rural Health committee and its advisory committee stand ready to serve the rural people and the Arkansas Medical Society in any capacity in which it can promote better health for the people of Arkansas. The chairman continues to serve on the Council on Rural Health of the American Medical Association and thus maintains excellent liaison with the AMA in all its programs.

Some members of the committee met at the mid-winter session of the Arkansas Medical Society and agreed to continue to support the programs outlined by the Council on Rural Health of the American Medical Association.

Sub-Committee on Liaison With the State Board of Health

Purcell Smith, Jr., M.D., Chairman

The Sub-Committee on Liaison With the State Board of Health met on December 15, 1968. Members of the committee present included Dr. Purcell Smith, Jr., Dr. Hugh Edwards and Dr. Jack Dobson. It had been hoped that some representative of the State Board of Health could be present, but there was no such representative present.

It was the consensus of opinion of those present that there were no matters of importance pending at this time. One of the members did comment on the State Health Department program of identifying streptococcal infections for the practicing physician, and felt that this was being done in a very excellent manner.

The sub-committee will feel free to contact Dr. Herron or one of his representatives regarding matters that should be considered; the State Health Department is likewise encouraged to contact the sub-committee.

Sub-Committee on Tuberculosis

John C. Schultz, M.D., Chairman

The Sub-Committee on Tuberculosis met with the Arkansas Health Planning Program's Ad hoc committee to study the Arkansas Tuberculosis Sanatorium on September 18, 1968, in Little Rock.

The sub-committee, with the cooperation of the State Society Office, submitted to the physicians of the Arkansas Medical Society the following questions:

1. Should the Arkansas Tuberculosis Sanatorium expand its services to include treatable, chronic chest disease in patients who

are medically indigent and referred to the Sanatorium by their physician, when there are beds available and not in use for the treatment of tuberculosis?

2. What is the population of your community?
   3,000 or less
   3,000 to 10,000
   10,000 or greater

The results of the survery were as follows:

Population of town	Yes	No	Indefinite or Qualified
3,000 or less	69	17	—
3,000 to 10,000	123	22	1
10,000 or greater	395	162	7
Unknown population	1	—	1
	588	201	9

Total Replies: 798

The sub-committee met on December 15, 1968, in conjunction with the annual fall meeting of the Arkansas Medical Society.

Sub-Committee on Aging
Sanford C. Monroe, M.D., Chairman

The Sub-Committee on Aging held its first meeting on December 15, 1968, at the Marion Hotel in Little Rock, Arkansas. Committee members in attendance: Doctors Sanford C. Monroe, Chairman, Pine Bluff; Woodbridge Morris, Little Rock; John F. Guenthner, Mountain Home, and Don G. Howard, Fordyce.

This committee meeting was called by the chairman without a specific agenda but for the general purpose of organization and discussion. As best we could determine, the previous committees had not undertaken any specific projects and there was no old business to be considered. The committee members discussed the status of the committee in functioning under the Committee on Rural Health. This led some of the committee members to express a feeling that more effective action could probably be expected if the Committee on Aging were constituted as a committee on its own and not a part of the Committee on Rural Health. A recommendation to this effort is therefore submitted to the Council.

A resolution was introduced by Dr. Woodbridge Morris and approved by the committee asking Dr. Drewery of Camden to summarize for the committee his experience in problems relating to the aging medical group and his recommendations in the area of needed action by this committee.

A motion was made by Dr. John Guenthner and approved by the committee that we request a meeting with a representative of the State Health Department, Blue Cross and Blue Shield, and a representative of the Rural Health Committee. It was felt that such a meeting was desired for the multiple purpose of outlining and delineating the functions of this committee.

Finally, there was a general discussion of the committee members on the problem of aged automobile drivers and problems relating thereto.

Sub-Committee on Mental Health
W. O. Young, M.D., Chairman

The Sub-Committee on Mental Health of the Arkansas Medical Society feels that we have made a great deal of progress in two areas which have been part of our program for several years.

We feel that the program for postgraduate education for physicians in general practice, in dealing with the psychiatric problems of their patients, is doing very well. Dr. William G. Reese and Dr. Robert Matthews started this program four years ago. Each year there have been more physicians who have been interested in the program and who have taken part in the weekly seminars that last through a greater part of the year. The program, by invitation, has been taken to various parts of the state. It has been well received by the groups to whom it has been presented. It is the impression of those who have been involved with this program that they have felt they received a good deal of help in dealing with the problems of their own patients. This program could be expanded, but the principal problem now is the lack of funds. The program has been financed by a Federal grant and by money from the University of Arkansas Medical School budget which goes to pay the salaries of Drs. Reese and Matthews and some of the secretarial assistance. We do feel that the Sub-Committee on Postgraduate Education should be involved in this project.

The second project that this sub-committee has been working on for several years is the establishment and assistance of mental health clinics throughout the State. After the Superintendent of the State Hospital was appointed the Mental Health Authority in Arkansas two years ago, he employed Dr. Lee Sewall as Director of Local Mental Health Services. Dr. Sewall has spent all of his time working with various groups

around the State, helping them to set up mental health clinics and to make adequate plans for financing them. Here, again, one of the big problems is the lack of funds. Dr. Sewall, apparently, operates completely on a small Federal Grant for this purpose. We would feel that there should be some funds in the appropriation for the Mental Health Authority from the State of Arkansas to help this program, and that a great deal more could be done if there were more money available.

The problem of the care of adolescents and children who develop psychiatric illnesses has been discussed by the members of the committee. At the present time there is no specific agency which tries to deal with these problems, but small parts of the problem are dealt with by several different state agencies. The committee feels that this is one of the most critical needs in mental health for the State of Arkansas and that the Society should urge the State Administration and the Legislature to make some definitive steps to provide services for this group of citizens.

The committee is also quite concerned by what appears to be discrimination against patients who develop psychiatric or emotional illnesses. We feel that many insurance programs do not treat this type of illness as they do other illnesses. As a result, the doctor who treats the patient for an illness of this sort, whether it is an emergency or not, is very likely not to be paid by the insurance carrier which would willingly take care of another form of illness. We would urge the State Medical Society to take a strong stand on this and insist that health insurance carriers, who operate in the State of Arkansas, make no distinction between an emotional illness and a physical illness.

The committee feels that in the field of mental health that there are many social problems which directly involve the mental health of the citizens of Arkansas and which ultimately involves the physicians who have to deal with the problems which these issues raise. We feel that there are two areas in which we should be vitally concerned.

The first area is in the changing sociological structure of our culture. Specifically this means trying to cope with the problems which are arising from the desegregation of the public schools. We feel that all physicians should be involved in this situation and are obligated to try to work out the problems resulting from this situation as a matter of preventive medicine in the care of their patients.

The Committee on Mental Health has discussed three particular areas which have and do pose legal problems for the physicians. The first is that of liberalizing the abortion laws, the second is the situation involved in sterilization operations, and the third is the problem of the confidentiality of the communication between the patient and the physician. So far as we know, there are no laws affecting the physician in the latter two instances. There are many occasions in which physicians are faced with taking certain actions without knowing what the consequences of these actions would be. We would suggest that the Arkansas Medical Society appoint a well qualified committee to study the present laws of Arkansas in regard to abortions, sterilization, and the confidentiality of patient-physician communications, and should consider recommending additional laws to more clearly define the situation and to help the physician discharge his obligation to his patient.

The committee feels that one of the areas of mental health which is frequently ignored is the care of the elderly patient with an organic brain syndrome or some emotional disturbance which makes them rather difficult to treat in nursing homes. We feel that if the State Mental Health Authority had funds and could have qualified physicians on their staff to work with the nursing homes in setting up methods of caring for these patients, this need could be met on the local level without establishing some large central institution to care for these people.

Your Sub-Committee on Mental Health is quite happy to report that we feel that our Society and the State in general is making a good deal of progress in improving the mental health of the citizens of the State, but we do feel that there are many problems which are quite acute and which demand immediate attention.

Immunization Sub-Committee

Wilbur G. Lawson, M.D., Chairman

The Immunization Sub-Committee has been active in the year 1968 on an individual basis in aiding and assisting the state-wide administration of mass measles clinics in the school systems to augment and supplement the efforts of private practitioners in eradicating measles in Arkansas. This program has shown apparent effect

in a sharp reduction in the incidence of measles in the State of Arkansas, changing from a reported incidence of over 1,400 cases in 1967 to a reported number of 2 as the year 1968 drew to a close.

Additional copies of the placard for information for practitioners, to be applied to office refrigerators, were distributed at the annual State meeting in Hot Springs.

There was advancement in the extension of efforts toward legislative amendment of the State Immunization Law to correct certain inefficiencies that have been perpetrated by the original act.

The committee chairman has given some consideration and thought to requesting permission to promote and develop a program of legislation in regard to fluoridation of water supplies in the State of Arkansas through legislative act. This is somewhat out of the scope of biological immunization but is certainly a move that apparently is going to require designation to some committee for its promotion.

The proposed interview appearances on television of last year became unnecessary as the Arkansas State Department of Health implemented the program of measles immunization and the committee felt it unnecessary to duplicate their efforts, but rather assist in its actions.

It is apparent by the morbidity and mortality reports from the U. S. Department of Health, Education and Welfare that the broad spectrum immunization of Arkansas children is showing good effect and there is good effort going into it. At the present time we have on the immediate horizon the possible control of mumps and rubella as well as more advancement in the protection against specific influenzal viruses.

Sub-Committee on Traffic Safety

Louise M. Henry, M.D., Chairman

The goals for the past two years of this committee are being accomplished in the present session of the State Legislature.

Drivers whose alcohol content is 0.10% are now considered driving while intoxicated, instead of the former unrealistic 0.15%. This is covered in a recent bill passed by both Houses of the Legislature.

The companion bill of implied consent is expected to pass this session of the Legislature.

Credit for this legislation goes to Dr. Morriss Henry, Representative from Washington County, and the legislators who worked with him: Dr. H. W. Thomas, President of the State Medical Society; Dr. Elvin Shuffield, Chairman of the Legislative Committee of the Arkansas Medical Society; Lieutenant Colonel William C. Miller of the Arkansas State Police Department; Dr. Warren Murry, and other members of the Sub-Committee on Traffic Safety.

Sub-Committee on Liaison With Vocational Rehabilitation

Paul G. Henley, M.D., Chairman

The Sub-Committee on Liaison With Vocational Rehabilitation met December 15, 1968, at 10:00 A.M. in the Hotel Marion, Little Rock, Arkansas. To serve as an adequate liaison committee, it is necessary that information be derived from both the Arkansas Medical Society and the Arkansas Rehabilitation Service. It was noted that Mr. E. Russell Baxter, Director of the Rehabilitation Service, and Mr. L. H. Autry, Director of the Arkansas Rehabilitation Service for the Blind were both consulted. The members of the committee also had occasion to discuss medical problems as related to the Rehabilitation Service.

The following topics that were of interest to these two groups were discussed.

I. FEES FOR SERVICE

The entire fee for service program of the Rehabilitation Service was studied in consultation with Mr. Russell Baxter and his staff. It was found that they were most gratified to report that the charges made by the doctors of Arkansas were reasonable. It was also noted that funds were not adequate for a twelve month period. Even after adequate fees for the total program had to be discontinued, the Rehabilitation Service was still able to maintain a good program for those in need of rehabilitation. One reason for the early depletion of funds for a twelve month period was the increase in services rendered.

It was also brought to the attention of the Medical Society that where exceptional cases, such as possible cardiac surgery, necessary special attention was given to these cases.

II. PHYSICIAN ELIGIBILITY AND PARTICIPATION IN THE REHABILITATION PROGRAM

The committee was informed that the eligibility classification for participating physicians

was completed. The physicians cooperated readily in helping to maintain adequate eligibility records. It was recommended that any physician with a patient in need of possible rehabilitation services not hesitate to consult the nearest Rehabilitation Office for an opinion. These offices are anxious to be of service and will cooperate fully in any way to aid rehabilitatable patients.

III. BLIND PROGRAM

Mr. L. H. Autry, Director of the Blind Program of the Rehabilitation Service, requested that this report include a statement from his office to this committee that his Blind Program had not received the number of referrable blind people that were probably available. He felt that perhaps doctors had not been adequately informed in the past concerning this part of the program. Mr. Autry was quite interested in informing the doctors of Arkansas that he would welcome any referrals for possible service.

IV. ARKANSAS REHABILITATION SERVICE AND ARKANSAS CORRECTIONAL INSTITUTIONS

The committee was informed of the efforts being made by the Governor's office and the State government in attempting to aid selected correctional institution personnel. The Rehabilitation Service of Arkansas is willing to cooperate in any method possible with the Arkansas Medical Society and with the Arkansas Correctional Institutions to aid in their rehabilitation program. The committee recognized the efforts being made by a separate committee in reference to the health and other problems of the Correctional Institutions of Arkansas. This committee would like to urge that the Rehabilitation Service and the Arkansas Medical Society work in any way possible to upgrade the rehabilitation of eligible and proper prisoners.

V. MENTAL HEALTH PROGRAM

The committee was informed that a unit of the Rehabilitation Service in El Dorado had been working closely with the Mental Health Center and local physicians in that area. The Rehabilitation Service is presently assisting some two hundred patients of this Center by aiding in treatment and hospitalization as well as assisting many of them in additional training and job placement. The Mental Health Center is under excellent supervision. This Mental Health Center works very closely with the State Hospital for the mentally ill, but is not a part of that agency. Many patients of the State Hospital are released and referred to the Mental Health Center. The patients of the State Hospital who are clients of the Arkansas Rehabilitation Service are also referred directly to the Rehabilitation Unit of the Mental Health Center. The Mental Health Center is not operated by the Rehabilitation Unit, but the Rehabilitation Unit of this area has a closely working liaison with this Center. The physicians of El Dorado refer patients to the Mental Health Center when possible, rather than sending them to the State Hospital for the mentally ill. Many of these patients require hospitalization for a short period of time.

The Rehabilitation Service has personnel working with the intake personnel of the Mental Health Center. When a patient enters the Mental Health Center, the workers attempt to determine if the patient is a potential rehabilitation client. If he is found to be one, the Rehabilitation Service enters the case and determines if they can be of service to that particular client.

This aspect of rehabilitation is outstanding. Many of these mentally ill people never lose a day's work. Otherwise, they would have to go to a mental hospital for days or months for treatment. The average cost for caring for these mentally ill clients is in the range of other medical services.

The El Dorado Unit is the only one of its type in operation now and the committee would like to recommend that, in view of the accomplishments of this Rehabilitation Unit, more be done as quickly as possible for other sections of the State, as it is a statewide problem.

Sub-Committee on Postgraduate Education

James K. Patrick, M.D., Chairman

Our committee met four times during the past year with Doctors James S. Taylor, T. A. Feild, III, George Wynne, George Mitchell and myself in attendance at a majority of these meetings. Our purpose was to prepare guidelines for a grant from the Arkansas Regional Medical Program for continuing education for practicing Arkansas physicians. Dean Shorey of the Medical School is currently preparing the final touches to this grant request which will probably amount to several hundred thousands of dollars. If approved, Arkansas will have sufficient funds

available for the first time to present a complete postgraduate program to its physicians. The Executive Committee of the Council of the Arkansas Medical Society has endorsed the request for this grant and it is to be administered by a director who will be responsible to our Arkansas School of Medicine. Advisory committees, both from the Arkansas Medical Society and the School of Medicine, will work closely with the director and his staff. We hope to obtain approval of this grant request sometime in the next few months.

Committee on Hospitals

Art B. Martin, M.D., Chairman

The Committee on Hospitals of the Arkansas Medical Society met twice during the year. First meeting was August 4, 1968, with the Executive Committee of the Arkansas Hospital Association. The members who attended are as follows: Art B. Martin, John Woods, Wright Hawkins, J. M. Harris, Martin Heidgen, and George Talbot.

The purpose of the meeting was to plan a joint program with the Hospital Association and the Medical Society and to explore problems of interest to both groups. Due to the difficulty of arranging programs suitable for the groups, the last day of the Arkansas Hospital Association's annual meeting was planned to be of interest to the Medical Society.

The second meeting of the committee was December 15, 1968, at the Marion Hotel during the Society's Fourth Annual Officer's Conference. Attending were: Art B. Martin, Martin Heidgen and J. M. Harris.

A report from the Hospital Association revealed very little interest of the Medical Society in joint meetings. It was felt that other avenues should be explored to bring about discussion of common problems. Dr. Heidgen brought to the attention of the committee, a study made in cooperation with the U. S. Department of Public Health Service, following the Jonesboro disaster. Even though this report is in the draft stage, it is felt that it was important enough to send to the officers of each county medical society and to the administrator of each hospital, to alert our members to the need of preparedness for disaster. Dr. Robert L. Price of the U. S. Public Health Service, gave his permission to reproduce the report for our members. It is presented as part of our committee report.

DRAFT OF REPORT

By Dr. Robert L. Price

United States Public Health Service

Several disasters are or will be under study with the joint leadership of the American Hospital Association, the American College of Surgeons, the American Medical Association, and under the sponsorship of the Division of Health Mobilization, U. S. Public Health Service.

On Thursday, May 23, 1968, a disaster study was conducted at Jonesboro, Arkansas, by Dr. William T. Rumage, Louisville, Kentucky, who served on the team at the request of the American Medical Association; Dr. Martin F. Heidgen, Russellville, Arkansas, for the American Hospital Association; Dr. John W. Hard, Blytheville, Arkansas, for the American College of Surgeons, and Dr. Robert L. Price of the Division of Health Mobilization, Public Health Service, Department of Health, Education and Welfare.

The purpose was to learn what useful lessons other communities could apply to their own disaster plans by studying the response of Jonesboro and St. Bernard's Hospital on the night of May 15, 1968, when the area was ravaged by a tornado in which 103 homes were totally destroyed, 82 others severely damaged and 131 additional homes suffered lesser damage. Thirty-four (34) persons were killed as a result of the tornado. It first struck the area at 9:40 P.M. Most of the people were in their homes. The path of destruction was across the south end of town moving from west to east near the city limits. During the next six hours, 325 patients were seen in the emergency room, 40 were admitted, and 67 were transferred to hospitals in Memphis.

The team met during the day with the following group: the Chief of Police and the Fire Chief of the City of Jonesboro; Col. H. C. Knowlton, Administrator of St. Bernard's Hospital; Dr. Owen H. Clopton, Jr., Chief of Medicine; Dr. Grover D. Poole, Chief of Staff, and Dr. Glen F. Baker, Hospital Pathologist. A tour of the disaster area by the group was conducted by the Chief of Police and the Chief of the Fire Department. The damage and the problems of communication and transportation were enormous. Following this tour, conferences were held with the Hospital Administrator and the above named medical staff. During the conferences, problems of the following areas were discussed:

COMMUNICATIONS

The tornado struck the area almost without warning. A request was made some years ago for a "siren" but it was not acquired. Very few people were alerted to the fact that Jonesboro was in the path of the tornado. There were radio reports 10 to 15 minutes before the tornado struck. The hospital does not have a radio link with the State Police. Telephone communications broke down because of "overload." Incoming calls kept lines tied up so outgoing calls could not be quickly made. Restricted "out lines" are recommended as well as lines not going through the switchboard.

Dr. Poole emphasized the need for an adequate warning system. While attempting to obtain weather information he found no reception on any TV channel, nor was there any AM or FM radio signal. The value of a storm warning system, conceivably tied in with a Civil Defense Air Raid Warning System, is obvious because radio and television often fail.

The Civil Defense authorities were the first people to bring in victims of the tornado. These casualties were in an automobile wrecked by the storm. It was then that the hospital knew that there would be many more victims from this residential area with small homes varying in size and quality, very small bungalows to moderately solid construction in the range of $15,000. There were a number of trailers in the path of damage.

When the hospital administration and the staff knew that a disaster of major proportions had occurred, the disaster plan was activated. The hospital switchboard operator was thwarted in her attempts to notify the staff physicians in the community because the circuit overload had eliminated the dial tone. During the next hour when the circuits again became available, a flood of incoming calls into the switchboard almost nullified any attempt to place calls to the physicians.

Dr. Poole recommends that an unlisted phone be installed at the hospital switchboard to be used exclusively for outgoing calls in any future emergency situation. He also recommends that the medical staff investigate with the telephone company the possibility of the chief operator being able to clear at least one circuit whereby her office could accept the responsibility of notifying the doctors in the community of a disaster situation. If this is possible, the telephone office will be supplied with a list of the physicians and their home numbers to prevent a breakdown in this very important area of communication.

In spite of the communication problems all but two physicians on the staff were reached. Some of the physicians have indicated their intention of purchasing a short wave set to monitor police and fire department frequencies with an alarm device which would call attention to an emergency.

DISASTER PLAN

Many hospital disaster plans pre-assign each member of the hospital staff to a specific duty. Dr. Poole achieved much greater efficiency by assigning each physician when he arrived. It is recommended that other hospitals include this in their disaster plans.

The doctors began triage, but they also began immediate treatment. This caused problems since many of the initial victims seen were not as badly hurt as those brought in later. Many of the early arrivals were ambulatory or were brought in by their friends or families in automobiles. The people who were trapped under the collapsed buildings, trailers, etc., were usually desperately hurt and did not get to the hospital for some time. Then treatment facilities were being used for earlier arrivals who were less severely injured. This is an especially important consideration in disaster planning.

St. Bernard's Hospital fortunately has an unusually large emergency suite with spacious halls. This permitted a large number of people to be handled in the sorting area.

In spite of this advantage in their physical plant, problems arose to compound the problem of caring for the disaster victims. As soon as it became evident that many casualties had occurred, a call was issued from the hospital requesting blood donors. When hundreds appeared at the hospital, practically en masse, available space was severely overtaxed. Another problem was the appearance of many citizens searching for the missing. This influx of noninjured is to be anticipated. The disaster plan should include control of the noninjured people until local law enforcing personnel can take over this duty. Only 11 units of blood were actually used during this disaster. A normal blood bank inventory might suffice. General calls for blood donors or for that matter any service or supply should be released with great caution. The medical staff concludes that sufficient manpower must be as-

signed to permit rapid evaluation of airway problems, hemorrhage and shock. The hospital staff in a retrospective analysis of their work indicates that both manpower and facilities were inappropriately assigned to the primary closure of lacerations. There was a high percentage of wound infections. Disaster plans should specifically state that primary closure of even simple lacerations must not be carried out. These wounds should be thoroughly cleaned and dressed with non-adherent gauze adjacent to the wound. They can then be managed by the patient's private physician during succeeding days. Perhaps each patient could be given a letter to his physician stating the technical nature of the injury and its treatment.

The bed occupancy was high before the emergency and the effort to send patients home was fruitless because relatives could not be located, many homes were destroyed, traffic was snarled, streets were flooded, a main bridge was out, etc. It is recommended that, when necessary, those patients who are classified as being able to be safely discharged be moved temporarily to some area of the hospital which is comfortable, safe, and out of the way, thus making their rooms and beds available to more seriously injured incoming patients. Final disposition of these discharge-eligible patients can take place later when there is less confusion and when communication and transportation have been restored.

The hospital morgue was inadequate to hold all of the bodies, but fortunately identification was prompt so local morticians removed bodies quickly. Emergency refrigeration of corpses should be planned for in case of need for holding for identification, etc.

The need for adequate emergency electric generators was again demonstrated. This hospital is fortunate in having two 100-KW generators tied in with automatic switching devices.

SUPPLIES

Several problems relating to supplies and equipment arose during the disaster which deserve comment. It was stated by the Hospital Administrator that, in general, a 45- to 60-day inventory, which is that customarily carried by the hospital, proved to be adequate although a few items were in short supply. He suggests a 60-day minimum and a 90-day maximum inventory should be carried of the following supplies: Xylocaine and Carbocaine, Phisohex, 21 needles, disposable syringes and Curlex gauze.

During the disaster period, the hospital needed a large number of litters. When the need for these became obvious the Packaged Disaster Hospital, which was stored in a building some six blocks away, was opened but the litters were not found. Folding cots were then put into service and found to work fairly satisfactorily. It is apparent that the storage of the Packaged Disaster Hospital should take into consideration the order of use and likelihood of use of the contents. In a local disaster, litters, blankets, cots, and certain medical supplies are most likely to be needed and should be stored for easy identification, access and removal. All boxes, cartons, packages, and crates should be oriented and arranged so they can be identified and removed. Labels should be exposed and components should not be hidden behind other components.

INJURIES

Of the 34 fatalities incurred during the disaster, 17 were brought to the hospital where they were seen by the Hospital Pathologist. It was Dr. Baker's observation that all of these victims could be described as having received massive blunt trauma. One victim had a complete evisceration of all body cavities, another had the calvarium removed with evisceration of the cranial vault, and all had multiple long bone fractures.

Of the non-fatal injuries, the most severe were head injuries such as depressed skull fractures, crushing chest injuries, and a very few intraperitoneal visceral injuries. The vast majority of the fatalities were apparently immediate. One patient expired in the emergency room at St. Bernard's Hospital before definitive resuscitation could be accomplished for a crushed chest. One patient expired while being transported to Memphis with a severe head injury, and one patient expired in the operating room at St. Bernard's Hospital as a result of ruptured solid viscera and hemorrhage.

Division of Health Mobilization experience suggests that there is a pattern in natural disasters of a narrow gray zone of severe injuries where survival depends upon the immediacy and adequacy of medical treatment. A somewhat larger zone of hopeless injuries exists and there is a very large zone of non-fatal injuries which are not life-threatening, but which require medical management. The experience at Jonesboro appears to confirm this impression.

SUMMATION

The tornado at Jonesboro on May 15, 1968, represented a disaster of major proportions to this community of 25,000 people. Although this experience has pointed out a few areas in which improved techniques can be developed, it is quite obvious that the disaster plan of the hospital was flexible enough to be adapted to the true situation. The adequacy of response and facilities appeared to be above the average seen in a community of this size. More serious problems could have occurred had there been only the usual cursory preparation and less adequate facilities.

Dr. Poole emphasized that the turning point from a near chaotic situation to one of organized efficiency came with the realization that evacuation to Memphis hospitals must be accomplished. It was his firm conviction that in the event of future disasters, this decision would be made even earlier. Therefore, disaster planning of a community with limited hospital space and, particularly with a limited emergency room area, should incorporate a positive plan for evacuation of many of the injured as soon as appropriate supportive or resuscitative care can be inaugurated and the patients can be safely transported. Pursuant to this, prior contact with other hospitals is essential. It should also be noted that pick-up truck campers, which are in abundance in most communities, can be used very efficiently to transport the injured.

Hospital staff members in anticipating their function during disasters should also be cognizant of the fact that in natural disasters of this type, the earliest arrivals at the hospital will tend to be the less severely injured. Therefore, some caution is urged in immediately committing staff and facilities to first arrivals unless their need is critical. Those with head and chest injuries are likely to be among the later victims arriving in the hospital.

Finally, let it again be emphasized that primary suture of lacerations under these circumstances must not be carried out. In most disasters these wounds will be unbelievably filthy and aseptic conditions will be impossible to create. Thorough cleansing should be accomplished with proper dressings and close follow-up by their attending physicians over the succeeding days will permit definitive treatment under more ideal conditions and with much less morbidity.

Public Relations Committee

A. C. Bradford, M.D., Chairman

As Chairman of the Public Relations Committee I submit the following report.

Throughout the year we have worked closely with the Arkansas Medical Assistants Society. We have helped to encourage them in their program as they have made a real effort to increase their membership from the unenlisted Medical Assistants throughout the State of Arkansas. The Arkansas State Medical Association should give full support to the Medical Assistants for they are a most effective public relations effort on the part of the physicians of Arkansas. It has been a pleasure to work with this organization.

In August, as Chairman of the Public Relations Committee, I had the privilege of representing Arkansas in Chicago and the annual AMA Communications Institute. There were good reports of some most interesting public relations work that is being done in several of the component State Medical Societies. We would do well to use many of these public relations promotional ideas in promoting better communications between the individual physicians in our State Society as well as portraying our image to the general public. One thing is evident. Each of these societies have a full time person who works principally with their public relations. Without these full time public relations people they would be unable to promote the programs that they have reported upon. Your Public Relations Committee has been disappointed that our State Medical Society has not been able to employ a Public Relations man as was voted by the House of Delegates at our last annual session in Hot Springs, Arkansas. It is our opinion that we will not have effective public relations effort for the Arkansas State Medical Society until we can have an employee working principally in the field of Public Relations.

The recommendation of the committee is that the Arkansas State Medical Society proceed to employ a Public Relations man at the earliest time possible that this can be done.

Sub-Committee on Liaison With the Woman's Auxiliary

Joseph A. Norton, M.D., Chairman

The Advisory Committee to the Woman's Auxiliary to the Arkansas Medical Society, 1968-69, is composed of Dr. Sanford Monroe, Dr. Mil-

ton John, Jr., Dr. C. C. Long, Jr., and myself.

We have not been called to meet as a group. We have been contacted by Mrs. Burroughs, President of the Woman's Auxiliary, on several occasions. We tried to give encouragement and to help where possible. We are encouraged by the tremendously fine on-going program of the Auxiliary and by the enthusiasm of the leadership. We certainly feel that the Auxiliary efforts should be encouraged and supported in every aspect.

I personally would like to urge joint meetings of the doctors and their wives at regular intervals in the various county societies and auxiliaries. I would especially encourage the physicians to accompany their wives to the scheduled luncheon Monday during the coming State Medical Meeting, when the Auxiliary has planned a rather unusual, interesting and pleasant skit. The effort will be rewarded with good food, good companionship and a great deal of fun.

It has been a pleasure to work with Mrs. C. D. Burroughs and the leadership of the Woman's Auxiliary during this year.

Sub-Committee on State Health and Medical Resources for Civil Defense

Edgar J. Easley, M.D., Chairman

The Sub-Committee on State Health and Medical Resources has established a close working relationship with the State Health Department and the State Civil Defense Agency during 1968, by support and coordination of activities in promotion of disaster preparedness at the state and local level. The following recommendations were submitted to the House of Delegates for adoption in support of these activities:

1. That all county medical societies support and participate in disaster preparedness in their respective communities.
2. That all county medical societies that do not have a disaster committee, appoint such a committee and that this committee be urged to work closely with the local hospital and the State Health Department in developing community emergency health services and operational plans for use of Emergency Health Resources.
3. Promote and encourage participation of all society members in disaster exercises.
4. That the State Medical Society encourage and support legislation that would develop coterminus districts in the State for all governmental agencies.
5. Request from the Public Health Service, exhibits to be displayed at State Medical Society meeting to promote Disaster Health Services.
6. That this committee encourage allied medical societies to participate in disaster health preparedness.
7. That this committee work closer with State Health Department and with the M.E.N.D. coordinator at the University of Arkansas Medical School.
8. That plans be made to execute a disaster drill in some small selected county.
9. That the Arkansas State Medical Society distribute a copy of these recommendations to all county medical societies, county judges, mayors, Arkansas Dental Association, Arkansas State Pharmaceutical Association, and the Governor.

The last meeting of the sub-committee was held during the annual fall conference, December 15, 1968. At this meeting the committee agreed to submit to the House of Delegates a letter in support of the statewide radiocommunications network being developed by the State Civil Defense Agency. The committee also agreed to study for consideration and revision a resolution drafted for the purpose of establishing Emergency Health Services at the community level. (See attached)

We are of the opinion that the continued coordination and cooperation that exist between the sub-committee and allied agencies is the primary factor in establishing Emergency Health and Medical Services in the communities of Arkansas.

DRAFT RESOLUTION FOR TEXARKANA, TEXAS, AND TEXARKANA, ARKANSAS

WHEREAS, there is considerable emphasis on the total concepts of emergency health and medical services and much interest at all levels of government, medical, health, and hospital organizations and publications associated with the health and medical professions; and

WHEREAS, the President and the Congress of the United States have evidenced their intentions to establish a state of readiness through Executive Order 11001, February 20, 1962, cov-

ering health services, civilian health manpower, health resources, welfare services, and educational programs with respect to all conditions of national emergency and the passing of the Highway Safety Act of 1966, establishing performance standards for virtually all aspects of state and community highway safety programs, including "emergency services"; and

WHEREAS, it is in the public interest, safety and welfare that local emergency health and medical services and facilities are well coordinated, properly evaluated, adequately equipped, staffed, and maintained in order to provide the most competent, safe and efficient emergency health and medical services possible.

NOW, THEREFORE, BE IT RESOLVED, that there be established an Emergency Health and Medical Services Committee of the cities of Texarkana, Texas, and Texarkana, Arkansas, for the purpose of surveying, evaluating and providing recommendations for improving all aspects of the two cities' emergency health and medical services and facilities, including all ambulance emergency unit services. The committee will be responsible to the two City Councils for the coordination of all lay and professional activities necessary to first aid, transportation, emergency health and medical care, and definitive treatment of emergency medical cases and the victims of accidental injury.

This committee will, after necessary investigation and study, advise and recommend to the two City Councils the minimum standard for the highest possible efficiency in day-to-day care of emergency cases and also organize a system to cope with local or national disasters.

BE IT FURTHER RESOLVED, that the Emergency Health and Medical Services Committee be composed of one representative each of the Bowie County Medical Society, the Miller County Medical Society, the Texas Chapter of the American College of Surgeons Committee on Trauma, the Arkansas Chapter of the American College of Surgeons Committee on Trauma, the American Red Cross, and one representative from each city representing the local hospital administration, local Bar Association, local Nursing Association, Police Department, Fire Department, Civil Defense, Board of Education, County Health Departments, and the Motorist Association. The members of this committee shall be appointed by the two City Councils from representatives designated by the above-named agencies.

Advisory Committee to the Arkansas State Medical Assistants Society

Millard W. Black, M.D., Chairman

It has been my pleasure to serve as chairman of the advisory committee of the Arkansas State Medical Assistants Society this past year. I have been pleased to learn, first hand, of the excellent work being done by this organization. Due to the medical assistant's daily contact with the patient I feel that this organization is the background for one of the best public relations programs in organized medicine today. At the present time, members of the group are conducting an extensive membership drive under the capable leadership of Mrs. Le Laubauch of Fort Smith. They are attempting to enroll each medical assistant in Arkansas before the close of 1969. As chairman of the advisory committee I have written letters to the president of each county medical society asking them to encourage medical assistants in each physician's office in their county to join this fine organization. Dr. A. C. Bradford of Fort Smith, who is chairman of the Public Relations Committee of the Arkansas Medical Society and also a member of this committee, has written similar letters to the county society presidents. Dr. Bradford, as well as Dr. Henry Thomas, State Medical Society president, have been most active in the work of this committee. I was a guest of the Jefferson County Medical Assistants Society in Pine Bluff in November and it is gratifying to see the educational program in effect in this particular county under the leadership of Mrs. Vera Stemmle who is a Certified Medical Assistant. Edith Crane, who has been my medical assistant for the past 13 years and is currently serving as state president, has visited many of the county societies this past year. Edith tells me that many of the girls are now working in the certification program. This certification will certainly add much to the medical assistant's image in the professional world and I would encourage each physician not only to ask their medical assistant to join the Medical Assistants Society but also to participate in this educational program.

Committee on Insurance

Thomas D. Honeycutt, M.D., Chairman

Your Insurance Committee is pleased to report that all the insurance programs of the Arkansas Medical Society are running smoothly.

The Group Life Insurance Program, underwritten by Northwestern National Life Insurance Company, has informed the committee at the present time there are over 500 policies in force. During 1968 two death claims were paid for a total of $20,000. At the present time all participating members received a 9.3 semi-annual dividend on their annual premium. New members of the Arkansas Medical Society are allowed the privilege of purchasing up to $20,000 of group life insurance without furnishing evidence of insurability if they enroll within 120 days of joining the Society. For further information regarding the group life insurance program members should contact Waner Marks, General Agent, Northwestern Life Insurance Company, Commercial National Bank Building, Little Rock, Arkansas.

Your Society's Group Plan of Disability Insurance has 407 participants. This is an increase of 27 over the previous year. There were 114 claim payments made during the year for a total of $49,658.02. Under the group plan for Professional Overhead Expense Insurance 116 members participated in this plan and during the year claims totaling $21,817.13 were paid to the participants.

A Professional Catastrophe Liability Policy has been in effect for some 9 months. At this time over 100 physicians have applied and been insured under this policy and in response to a recent mailing campaign a number of applications are now pending. This plan provides for coverage up to $1,000,000 (higher limits are available) after basic limits have been exhausted. This plan is relatively inexpensive and every physician in the Society should consider purchasing this additional insurance. For further information contact Mr. Jim Harper, Rather, Beyer & Harper, 223 Louisiana, Little Rock, Arkansas.

The Professional Liability Insurance Program, underwritten by St. Paul Insurance Company, has 350 physicians enrolled. Losses paid in 1968 were $11,600. Reserves were set up for potential losses in the amount of $55,000. The companies writing Professional Liability Insurance in Arkansas that are members of the Bureau Stock Companies have instituted rate increases ranging from 100% to 300%. At the time of this report St. Paul is not prepared to say what their rate increase will be but your committee has been assured that increases will not be in these proportions. Most likely rates will average about 30% below those of the Bureau Stock Companies.

Committee on Arrangements for Annual Session

Joseph L. Rosenzweig, M.D., Chairman

The Program Committee met in Little Rock in May and outlined the scientific program for the 1969 State Meeting. The following is an outline of the program.

(A) Monday's Scientific Program will consist of ten presentations of thirty minutes each. There will be two papers on each of the following subjects: (1) EENT, (2) Surgery, (3) Orthopedics, (4) Urology, and (5) Obstetrics-Gynecology.

(B) Tuesday morning's program will be under the direction of the Communicable Disease Center, Atlanta. These subjects will be of interest to all fields of medicine.

(C) The Memorial Service will be Tuesday morning, and will be conducted by Dr. A. C. Bradford, Fort Smith.

(D) Tuesday afternoon's program again will be given over to the various specialty sections. Guest speakers from the general sessions will participate.

(E) Dr. Charles Logan will be chairman of Scientific Exhibits with Dr. Harry Hayes as co-chairman.

(F) It is anticipated that a representative of HEW will be available for information purposes.

Monday night's entertainment will be cocktails and buffet at the Majestic Lodge. Tuesday night's program at the banquet will be provided by some of the Garland County members and their wives.

Committee on Liaison With the Nursing Profession

Frank Padberg, M.D., Chairman

The Committee on Liaison With the Nursing Profession met on December 15, 1968, during the annual Winter Meeting of the Arkansas Medical Society. The subject of the meeting was a proposed joint meeting with the Arkansas State Nurses' Association to discuss "gray areas" in nursing. Subsequently, the committee met with

representatives of the Arkansas State Nurses' Association, the State Medical Board and the State Medical Society.

Your committee wishes to report that communications with the registered nurse group are much improved. It is believed that discussion of their problems with the nurses tends to diminish their importance. It is anticipated that such communications will continue.

Committee on Medicine and Religion
Jerome S. Levy, M.D., Chairman

The Committee on Medicine and Religion met several times during the year. Mr. Robert Etheridge of the American Medical Association Department of Medicine and Religion met with us each time. The February Staff meeting at St. Vincent Infirmary was held under our auspices, and Rev. Dr. Paul McCleave, Director of the Department of Medicine and Religion, presented the American Medical Association's program. He spoke on the need for close communication between the disciplines of medicine and of theology. The doctor's response to his presentation was exceptionally pleasing. This meeting was held in February.

Following this, the committee sponsored the Staff program at the Baptist Medical Center in August. Dr. Carl Wenger and Dr. William Harville represented the Medical Staff and Rev. Dr. Dale Cowling and Rev. Don Campbell represented the clergy on a panel discussing the question, "Doctor, Why Don't You Let Me Die?" There was a general discussion which expressed a deep interest by members of the Staff and this program, too, was well received.

We have recently begun planning a meeting at the University of Arkansas School of Medicine for this Fall. It is our desire to find an area of mutual interest with the students to bring to them an understanding of the value of close cooperation in the treatment of the whole man. One subject we have been considering is the question of privileged communications and how much may be divulged to each, the doctor and the minister, to bring health and spiritual comfort to the patient and to the family. Other questions are being considered. It has been arranged to have Dr. William Beechey, of St. Luke's Hospital, Kansas City, to address the student body of the Medical School on March 18, 1969, on the cooperative effort. Dr. Beechey is both a doctor and a minister.

At one meeting, Rev. Dr. Don Corley presented a program which was being developed by the Chaplain Program at the Arkansas Baptist Medical Center. This was outlined to us for our approval. His office had started plans for seminars to be held at various cities in the State to bring to the clergy's attention the value of the chaplain in the hospital and to describe the techniques to be used. The doctors were to be invited to these seminars which would begin with a meeting the night before with the doctors in attendance and participating fully. The program was approved by your committee for joint sponsorship. Dr. Corley will report to us on the results of the several meetings he had held.

We have been given close support and cooperation by the clergy. Dr. Ira Sanders has been chairman of the Ministerial Advisory Committee from Pulaski County. They have been very helpful. Mr. Robert Etheridge of the Staff of the Department of Medicine and Religion has been of great assistance to us in our planning and I wish to express our thanks to him for advice and assistance. Mr. Arnie Larson will be with us in the future in this capacity. He is now assistant to Dr. McCleave. He has been equally helpful.

Dr. John Miller of Camden attended the meeting in Chicago in February as the representative of the Arkansas State Medical Society when the meeting of all of the State committees was held there. Your chairman plans to attend the meeting on March 1, 1969.

We welcome any and all suggestions from the doctors of the State on how we can do a better job for them.

Constitutional Revisions Committee
Lee B. Parker, Jr., M.D., Chairman

The committee met on December 15, 1968, at the Hotel Marion at 10:00 A.M. The chairman and two members were present.

The proposed constitutional revision regarding life membership was discussed, and it will be read for the second time and voted upon at the 1969 annual session.

No new revisions were proposed.

Arkansas State Advisory Committee to the Selective Service System
Gerald H. Teasley, M.D., Chairman

The Medical Advisory Committee to Selective Service has not been very active in 1968. It is

hoped that this happy situation will continue throughout 1969 and the following years.

Recent contacts with the Selective Service System revealed no immediate calls for active duty among the physicians in practice in the State. No information is available as to what might happen later on, but activity is not supposed to increase too much under the present outlook.

Twenty-One Man Fee Committee

C. C. Long, M.D., Chairman

One meeting was held with the Twenty-One Man Committee during the year, on August 18, 1968. At the time of this meeting several items were discussed. First, decision was made on the payment of ECG interpretations. It was moved by the group that ECG interpretations be paid according to the usual customary and prevailing fee regardless of who provided the services.

At this meeting, also, a physician who had been submitting unusual charges for services for Medicare was heard, and his complaint about the payment of his fees and the necessity for reporting same. After hearing the physician's statements and the statements of Blue Cross-Blue Shield relative to the problem, the committee decided that no action was required and that the reports had been received for information only. Following this, Dr. George Mitchell explained to the committee that he felt that a professional review mechanism needed to be established and suggested that two committees, one medical and one surgical, be formed to review cases not requiring the full services of the Twenty-One Man Committee. It was moved and seconded that such committees be set up if and when the Executive Committee and Dr. Mitchell felt this was necessary.

Also reported at this meeting was the regrouping of fee ranges into four or five different groups rather than the previous seventy-five county groups. The feelings of the carrier being that this would give a more fair representation, particularly when in some of the county groups certain services were provided by only one physician and that he established the range in that county. After discussion of this, the committee voted to have Dr. Mitchell and Blue Cross-Blue Shield proceed with these plans so that they might be submitted at a later date.

The Five-Man Committee that was appointed from the Executive Committee and the chairman of the Twenty-One Man Committee have been meeting on regular monthly intervals to review cases and provide guidance to Blue Cross-Blue Shield in the arbitration of difficulties. This work has been progressing satisfactorily and it is felt that this is very essential and should be continued, and possibly enlarged in the future, to provide better services to both the physicians of Arkansas and the carrier, Blue Cross-Blue Shield.

Committee for Correlation of Government Plans

L. A. Whittaker, M.D., Chairman

The 90th Congress that just expired was a "Go Slow" Congress. The following list of bills passed into law are medically oriented.

Regional Medical Programs—Extension of the heart disease, cancer and stroke program for two years. Aid for clinics for alcoholics, drug addicts. One-year extension of Hull-Burton program.

Health Manpower—$1.2 billion extension of aid for medical and other health schools plus support for health research facilities.

Drug Control—Stiff federal penalties for improper possession of amphetamines, barbiturates, LSD; longer terms for illegal sale.

Eyes—Establishment of separate eye institute at National Institutes of Health.

Money—National Institutes of Health received $1.1 billion; budget trimmed for second straight year.

Radiation—Federal standards to prevent dangerous emissions from electronic devices, with clauses exempting X-ray machines in physicians' and dentists' offices.

Mr. Wilbur Cohen, the ousted secretary of HEW, has just mailed out a carrot letter to all doctors. The veiled threat seemed to be if Medicare costs continue to escalate, then the federal government will be compelled to make adjustments.

The 91st Congress has had two bills of medical interest introduced.

1. A national facility for training of physicians.
2. Tax credit for health insurance premiums for low income families.

Implementation of Title 19 for Arkansas is being considered in the Legislature at the present writing and some type of basic medical care for welfare recipients will be passed.

Comprehensive health planning is moving along at an accelerated pace. A six-county area in Northwest Arkansas is well under way.

Many legislative changes, both State and national, will probably come about in the coming year. Be alert for them.

Student AMA Liaison Committee
Alfred Kahn, Jr., M.D., Chairman

The Liaison Committee of the Arkansas Medical Society met with Mr. Charles Nolan, a senior student at the University of Arkansas Medical Center, who is president of the Student American Medical Association Chapter.

Mr. Nolan gave us a discussion of the activities of the Student American Medical Association (S.A.M.A.). He stated that the Arkansas Chapter of S.A.M.A. has not been as active as they had wanted in the past but that now it was on a very dynamic program. For example, they had several new projects:

A. They have community health projects at:
   (1) Scott, Arkansas.
   (2) McAlmont, Arkansas.

He states that the community health projects were supported by the Office of Economic Opportunity. The program was mainly pediatrics. They gave innoculations, examinations, and referred certain cases to the University of Arkansas Medical Center. He states they would like to get into public health projects even beyond this. They hope to present their program to the Arkansas Medical Society in the Spring of 1969.

B. He stated S.A.M.A. was very interested in the medical education:
   (1) They are doing curriculum evaluation.
      a. They are studying specific courses.
      b. They are excited in long range planning.

He stated the teachers liked the feed back from these studies.

   (2) S.A.M.A. members have enjoyed a new preceptor program whereby sophomore students are taught clinical medicine by members of the Pulaski County Medical Society.

He stated that this seemed to be a mutually agreeable program and that both physicians and students were enjoying it.

Mr. Nolan stated there were now regular chapter meetings of S.A.M.A. and they were being well attended. S.A.M.A. was now using a page of the Medico, the school paper to express their ideas. This, also, has been well received.

Mr. Nolan hopes that S.A.M.A. would continue to receive financial support from the Arkansas Medical Society.

He also stated that he would like to keep up good communications with the Arkansas Medical Society.

A round table discussion was then held and it was felt by the discussants that there needed to be an overlap of attendance by the S.A.M.A. and the Arkansas Medical Society.

A. Members of S.A.M.A. should be invited to:
   (1) Scientific sessions of the Arkansas Medical Society.
   (2) They should be invited to administrative sessions of the Arkansas Medical Society.

B. S.A.M.A. should set up a liaison committee together with the liaison committee of the Arkansas Medical Society.

One discussant suggested that a teaching program to indoctrinate medical students in medical ethics and ideals should be set up. These would be oriented around private practice.

Discussion was held on the need for exposure of the medical students to the private practitioner below the senior level of medical school. Great attention should be spent focusing on clinical medicine.

Lastly, a discussion was held on the desirability of elective courses in medical school.

The meeting was informative and worthwhile to all.

Second Councilor District Professional Relations Committee
M. C. Hawkins, Jr., M.D., Chairman

The Professional Relations Committee, Second Councilor District, Arkansas Medical Society, has had no business to transact during the year of 1968.

Ninth Councilor District Professional Relations Committee
Ross Fowler, M.D., Chairman

The Ninth Councilor District Professional Relations Committee considered one case from the Oklahoma Welfare Department of over-utilization and over-charging by an Arkansas doctor.

More information was requested and when not received no action was taken.

Report of Medical Study Committee to Department of Corrections, State of Arkansas
W. J. Wilkins, Jr., M.D., Chairman

The report of the Medical Study Committee to the Department of Corrections, State of Ar-

kansas appointed by the Arkansas Medical Society involves the third phase of the work of this committee inasmuch as a report on phase one and phase two was presented to the Legislative Council on October 27, 1968.

Phase one includes familiarizing the members of the committee with the penal institutions, including the physical and administrative aspects, and the health care of the inmates and evaluation thereof with recognition of the problems which were present. The second phase of the work of this committee consisted of categorizing the immediate problems or temporary solutions as compared with the long range problems and permanent solutions. A description of these findings was presented in the preliminary report on October 27, 1968.

Those problems requiring urgent or immediate attention essentially involved patient care or medical treatment but also included certain aspects of sanitation, method of determination of terminal illness and the institutional threat of a continuing series of hepatitis cases. First, with regard to sanitation, the committee feels that the absence of basic plumbing and toilet facilities in the maximum security unit as a result of the violent destructive behavior of these particular inmates results in a deplorable condition. The unit itself is unsatisfactory from a health standpoint, but these basic provisions need immediate remedy. We are pleased to know that the State Board of Health recommendation for the maximum security area to be constructed will include recommendations for sanitation facilities and will be in accordance with the codes of the State Board of Health and other building codes. Our committee endorses this recommendation and stresses the urgent need for immediate construction of this facility. In pursuing the problem of the persistent endemic occurrence of hepatitis Dr. Willie Harris called on the United States Public Health Service for their investigation and recommendations. We wish to compliment him on this action and yet we realize that a continuing effort in preventive medicine incorporating the findings and recommendations of the public health service must be carried out in the future. Thirdly, this committee recommends that the determination of a "terminal illness" involves a significant responsibility that should not rest on one individual's shoulders. This committee, therefore, recommends that when the prison medical officer believes an inmate might be suffering from a terminal illness and thereby be eligible for clemency considerations, the opinion of two consultants who are qualified and recognized in the field of medicine involved by the case under question be obtained. These opinions, along with the recommendation of the prison medical officer, should thereupon be submitted through proper channels for disposition of the case.

The more immediate needs with regards to the medical treatment of the inmates hinged on the decision to continue with the present system of medical care until long range plans could be made. The problems and inadequacies of immediate concern were remedied by the adoption of certain administrative procedures and an improvement in lines of communication and organization. Again, Dr. Harris was able to obtain elective surgical correction for a number of the backlog of inmates who were awaiting elective surgery. He did this by utilization of the rehabilitation program with the cooperation of a Little Rock surgeon. Meanwhile through the cooperative efforts and suggestions of Dr. George Jackson, superintendent of the Arkansas State Hospital, a standard operating procedure was printed, and methods of communication be designated to responsible personnel to establish a system of consultative medicine to be provided by the Arkansas State Hospital, and enabling surgical care to be provided by the Arkansas State Hospital.

This committee feels that Dr. Willie Harris of England should be complimented on his sincere, concerned efforts to provide medical care on a part-time basis to the prisoners at Tucker and Cummins. Although this is most difficult for him to perform and it is somewhat less than ideal with regard to patient care, in the opinion of this committee the present medical care is satisfactory and Dr. Harris has indicated a willingness to continue in this capacity until a better, long range program can be established, provided that this is in the reasonably near future. Also, the Lazenby and Blackwell Clinic in Dumas agrees to continue caring for injured or emergency patients as they have in the past.

This committee feels that the general purpose of the medical care of the prison population is to diagnose and correct any physiologic malfunction the inmate may have when he enters; diagnose, treat and correct any illness or injury that occurs to him while imprisoned; and, in

general, to release him to society in the best possible physical and mental condition. This, then, is the purpose of the long range recommendation of this committee. It is the feeling of this committee that this can only be accomplished by a full time physician for the prisons. Furthermore, this position has been established and a salary has been authorized. This committee then urgently recommends that a full time physician be obtained, and that under his supervision and recommendation the remainder of the medical care program for the prisoners be carried out. It is recognized that there is difficulty in attracting a full time physician under the present circumstances. It is the feeling of this committee that the prison board should make every effort to employ such an individual, and that consideration should be given to added incentives such as the provision of a residence in a nearby city and augmentation of the presently authorized salary. We recommend a reasonable and realistic salary, which we believe necessary in our present economy to obtain a qualified physician. In support of this contention it should be pointed out that during the month of December, 1968, at Cummins unit infirmary there were 1,331 inmates treated on the building sick call. There were 460 laboratory procedures, there were 137 X-ray films exposed, and when various innoculations, therapeutic injections, new admission physical examinations and therapy treatments were added to this number, there were 2,390 treatments given. In addition, there were three patients receiving minor surgery at the Cummins infirmary, eight people treated in the Desha County Hospital of Dumas, mostly for injuries or emergencies, five patients receiving major surgery at the State Hospital, and 110 patients receiving out-patient consultation, at the State Hospital. This indicates a considerable practice, too large to try to handle on a schedule consisting of one-half day three days a week.

Furthermore, if the efforts of the prison board to employ a full time physician are not productive, we urge the consideration of investigating the possibility of establishing a position at the University of Arkansas School of Medicine of faculty rank which would involve full time responsibility for the care of patients at the Arkansas Department of Correction. It is the feeling of this committee that the State of Arkansas must assume responsibility for the care of the inmates at the State penal institutions. We feel, therefore, that it is logical for a State institution to participate in this care. At present, Arkansas State Hospital, is participating and has certain clinics which operate efficiently. However, other clinics are not administered in the same fashion and consequently do not conduct out-patient consultative care in the same manner. Therefore, although their willingness and sincere interest is greatly appreciated, this committee feels that a more unified treatment program would ultimately prove advantageous. The committee wishes to thank Dr. George Jackson and Dr. Winston Shorey, Dean of the Arkansas Medical School, for their sincere interest and their cooperative efforts in approaching this problem and providing us with their wisdom and recommendations. We are further indebted to Dr. Shorey for the evidence of his interest in appointing a faculty committee to investigate the role that the University Hospital might assume concerning the medical service provided inmates. This committee recognizes problems of security and expense involved therein, but also believes that the quality of medical supervision would be enhanced by such an arrangement. This committee also wonders if the funds of MEDCORE might be used to supplement the salary of this physician as well as to upgrade the plasma program. This committee wishes to go on record as recognizing the urgent need for a full time medical officer to care for the prison population and we wish to emphasize the necessity for the prompt implementation of this program.

The other recommendations concerning the long range program would of necessity be implemented by the medical officer and would demand his evaluation and judgment.

(1) Updating the building, the equipment and procedures would involve recognizing the need for bed space for 20 ill persons at a time, excluding epidemics or mass casualties. This is based on an estimated population of 1,500 inmates. Also, it is estimated that about 10 persons are in need of psychiatric care at all times and the patient load of 50 to 75 persons requiring out-patient psy-

chiatric care regularly can be anticipated.

(2) This committee recommends the maintenance of an ambulance in operating condition at all times.

(3) We further recommend that for adequate rehabilitation of a prisoner, elective or cosmetic surgery preparing him for work as a productive citizen prior to his return to the free world should be provided.

We wish to commend the present board for the institution of phychiatric evaluation of all new inmates beginning in May, 1967, and the recent provision of two psychiatrists, each available one-half day per week, for psychiatric evaluation under the rehabilitation program. Mr. Robert Sarver, the new Commissioner of Corrections, has begun working out a classification system including psychiatric classification for all inmates which we feel is urgently needed. Yet to be provided is a program of psychotherapy for all inmates in need of it.

(4) Sanitation. It is our feeling that the crowded conditions in the barracks is most undesirable and can only be remedied by a building program that will provide adequate space for all inmates. Until this is done we feel that the present arrangement is an emotional, physical and correctional handicap.

(5) Food and diet. While the services of a dietitian have been available each summer and many improvements have recently been made in the diet department and in the kitchen facilities, it is recommended that the dietary service of the State Department of Health be contacted to see what assistance could be provided in this area.

(6) Medical treatment. With the procurement of a full time medical officer, regular physical examinations would be desirable and might be possible. He also might provide technical training of inmates as a rehabilitation measure, supervision of improved and adequate records of all inmates would be possibility. Continuity of care would be significantly present. This would solve many problems peculiar to prison population. In recent months some of the functions of prison trusties as corpsmen have been replaced by free world employees. We recommend that around-the-clock coverage be provided by free world dispensary corpsmen and that no trusty have the responsibility of determining who is hospitalized or who is treated. The list of approved drugs in the pharmacy could be reviewed by the full time physician and be revised in accordance with accepted prison practice. Whereas there is no evidence of any narcotic or habit forming drugs being kept in the pharmacy, the prison population occasionally requires some drug and a prisoner may manifest said drug effects. With closer supervision and control the pharmacy would not be suspect. It would also be the responsibility of the full time physician to supervise the plasma program and pursuant to this consideration might be given to utilization of the MEDCORE funds to supplement this salary. The possibility of research programs available to a position established by the University should also be considered. Certainly the prison population would be a suitable control group for any research program and the custodial care of the elderly and the handicapped among the prison population would also be affected by him. Certainly this type patient is unable to perform certain work duties expected of the normal population. This full time physician could also evaluate how many isolation beds would be needed and could make recommendations on the needs for any building modification before it is undertaken.

(7) Administration. This committee wishes to express their recognition of the economies effected by Mr. Bobby Goss as business manager. We feel that the consolidation of the business office in Little Rock and the requisitioning of supplies in larger quantities for longer periods of time has effected a saving. We recommend that MEDCORE consider the provision of funds to the penitentiary in a lump sum basis monthly so that economy can be accomplished within the guidelines of approved expenditures which should be designated by MEDCORE. It would be desirable for an annual projection of expenses to be submitted like most grant proposals by annual budgets are. If this requires enabling legislation we would favor support of this. In anticipation of problems of finances in the future, we believe that clarification should be established on

the ability of the prison to receive a grant for medical purposes. We would favor separate funding from which only the dispersing officer of the penitentiary could spend. This could be protected by providing that any unauthorized expenditure could be reimbursable from the general fund. The other administrative topic pertinent to the welfare of the prison population would be the establishment of a classification center. At this time complete psychiatric and health evaluation could be provided and specific plans for total person rehabilitation could be projected. It should be pointed out that in an intermediate reformatory the health facilities are very important in this age group which normally consists of youthful offenders.

In conclusion this committee wishes to thank each of those who participated in our meetings and contributed their advice and thinking for our enlightenment.

Report of the Council

T. E. Townsend, M.D.

The Council of the Arkansas Medical Society met on Sunday, August 8, 1968, and transacted the following business:

I. Approved travel expenses for Mr. Warren to attend a meeting of Medical Society attorneys in Chicago.

II. Approved travel expenses for Dr. Bradford to attend a public relations meeting in Chicago.

III. Heard a comprehensive report on a regional legislative meeting attended by Dr. Fowler in Atlanta, Georgia.

IV. Voted to investigate the feasibility and advisability of applying for a project grant under the Regional Medical Program.

V. Approved increasing the salary budget for 1968 a total of $1,000.

VI. Approved increasing headquarters building rental allowance to $400 per month.

VII. Authorized the Executive Vice President to proceed with and make application for a project grant and to implement the Postgraduate Medical Education Program proposed in the grant application.

VIII. Directed the Executive Committee to exercise as much pressure as necessary to insure the correction of abuses of the various insurance programs by one or two physicians.

IX. Council voted to authorize payment of Dr. Saltzman's expenses as Society representative to the State Comprehensive Health Planning meetings.

X. Received for information a resolution by the Dermott Hospital staff criticizing the methods of the inspectors for the Joint Commission on Accreditation of Hospitals.

XI. Requested that Blue Cross-Blue Shield provide figures on the payments by Blue Cross-Blue Shield for hospital care as compared to payments for physician's services.

The Council met on Sunday, October 27, 1968, and transacted the following business:

I. Voted to pay expenses for a representative to attend Comprehensive Health Planning meeting in Miami in connection with the AMA convention.

II. Directed that a letter be written to the AMA recommending Dr. Joseph D. Calhoun for appointment to the AMA Interspecialty Committee.

III. In view of the fact that the University of Arkansas Medical Center was developing an application for a grant for postgraduate education under the Regional Medical Program, the Council decided to discontinue the development of the Society's application for a grant for a similar program.

IV. Decided to recommend to the House of Delegates approval of a plan presented by Blue Cross-Blue Shield for the operation of a "usual and customary" fee schedule for private Blue Cross-Blue Shield subscribers.

V. Authorized Mr. Warren and Mr. Schaefer and the State Board of Medical Examiners to work with the Society of Pathologists to develop legislation for the licensing of laboratory technicians.

VI. Directed that a report by Dr. Walter J. Wilkins, chairman of the Society's Medical Study Committee to the Department of Correction, be published in the Journal of the Arkansas Medical Society.

VII. Directed that the Executive Committee of the Arkansas Medical Society arrange a meeting with the Executive Committee of the Hospital Association to discuss hos-

pital charges and payments by Blue Cross-Blue Shield.

VIII. Voted to endorse the proposed Constitutional Amendment No. 53, known as the "kindergarten amendment."

IX. Reviewed the problem of licensing foreign graduates and requested that Dean Shorey work with Dr. Verser of the State Medical Board to continue to work on the problem of licensing foreign graduates.

X. Appointed a special committee to work on emergency health care service in Arkansas.

XI. Decided to go on record in opposition to nurses being allowed to give injections unless under the direct order of a physician.

The Council met on Sunday, December 15, 1968, and transacted the following business:

I. Approved a resolution pledging the Society to continue its efforts to insure all areas of the State have the services of physicians and that an adequate number of general practitioners are trained.

II. Approved a Rural Accident Prevention Program, including the adoption of a slow moving emblem.

III. Voted to pay 10¢ a mile travel expense for all Executive Committee travel.

Report of the Executive Vice President

Mr. Paul C. Schaefer

Positions of responsibility with medical organizations have taken on vastly increased challenge. Since 1966 the private practice of medicine has been torn from its secure position of stability and independence and thrown unceremoniously into the arena to contest with the forces of change for its very survival.

Medicare, Comprehensive Health Planning, Regional Medical Programs, and Medicaid (Title XIX), carry with them sufficient authority (much of it not yet exercised) to completely change the delivery of health care in the United States—changes which would alter the physician's daily practice, his standard of living and his status in the community.

Those selected as officers, committee chairmen and representatives to conferences now bear a great burden of responsibility. No longer are they mere observers or members of an audience at a lecture. Medical Society representatives are now required to be skillful negotiators, often attempting to ameliorate the effects of regulations drawn up by the people with whom they are negotiating.

Being elected an officer of the Medical Society is, with each passing year, accepting more of a full time job. Those who accept positions of leadership deserve the loyalty and support of the membership. They will get the loyalty and assistance of the staff of the headquarters office.

The amount and character of the work done by the headquarters staff has evolved so as to be hardly recognizable. Fifteen years ago, routine duties represented the bulk of the work. Now the routine work is so submerged by new responsibilities unheard of in 1954 that the Executive Vice President and his assistant are hardly cognizant that the routine work is going on. Each day presents new situations—not problems that can be solved, but situations which medicine must adjust to. In the last three years, medical organization has, by mitigating the effects of recent legislation, proven its worth as never before. Your staff is proud and happy to have been a part of the defense of the private enterprise practice of medicine in these difficult times. We look forward to working with the officers of a unified, progressive Arkansas Medical Society.

Budget Committee

W. R. Brooksher, M.D., Chairman

The Budget Committee submitted the following budget for 1969. It has been approved by the Council.

INCOME

Budget Item		1969 Budget
Membership Dues		$ 89,000.00
Journal Advertising		
Local	$ 5,000.00	
National	27,000.00	32,000.00
Booth Income		7,000.00
Annual Session Income		3,200.00
AMA Reimbursement		800.00
Income from Medicare		.00
Miscellaneous & Rosters		250.00
Interest on Government Securities		6,500.00
Retirement (Employee Contribution)		300.00
		$139,050.00

EXPENSE

Budget Item		1969 Budget
Salaries		
Society	$35,736.56	

Budget Item		1969 Budget
Journal	7,075.44	
Exhibit	750.00	$ 46,562.00
Travel & Convention		
Society	13,752.00	
Journal	1,874.00	15,626.00
Taxes		
Society	3,960.00	
Journal	540.00	4,500.00
Retirement		
Society	4,840.00	
Journal	660.00	5,500.00
Stationery & Printing		
Society	1,056.00	
Journal	144.00	1,200.00
Offices Supplies & Expense		
Society	2,640.00	
Journal	360.00	3,000.00
Telephone & Telegraph		
Society	2,273.00	
Exhibit	15.00	
Medicare	.00	
Journal	312.00	2,600.00
Rent		
Society	4,048.00	
Journal	552.00	4,600.00
Postage		
Exhibit	15.00	
Society	2,185.00	
Journal	300.00	2,500.00
Insurance & Bonds		
Society	1,760.00	
Journal	240.00	2,000.00
Auditing		
Society	264.00	
Medicare	.00	
Journal	36.00	300.00
Council Expense		500.00
Journal Printing		22,000.00
Annual Session		
Society	7,400.00	
Exhibit	1,400.00	8,800.00
Senior Medical Day		750.00
Public Relations		500.00
Dues & Subscriptions		
Society	1,760.00	
Journal	240.00	2,000.00
Contributions & Gifts		
Society	704.00	
Journal	96.00	800.00
Woman's Auxiliary		1,200.00
Legal Service		
Society	4,664.00	
Journal	636.00	5,300.00
Special Committee Expense		250.00
Rural Health		500.00
Miscellaneous		
Society	88.00	
Journal	12.00	100.00
Freight & Express		
Society	44.00	
Journal	6.00	50.00
Office Equipment		
Society	1,760.00	
Journal	240.00	2,000.00
		$133,138.00

The above figures present a budget of $133,138 as against an income of $139,050. In the event that the public relations man is added to the payroll, the total expense budget for 1969 would be $148,938.

Members of the Arkansas Medical Society, members of the House of Delegates and members of the Council should, in planning the future of the Society, recognize the fact that both government and industry now accept inflation as a permanent condition—a way of life—and not as a temporary phenomenon. In recent years, the annual cost of living, or doing business, has increased at a rate very close to 5%. Applied to our budget of $133,138, a 5% increase will swell our next budget (for 1970) by $6,657 because of increased prices, and without any additional programs or activities. Since each year's increase is compounded, a 5% annual increase for 10 years will increase our budget by *more* than half. A salary budget of $46,000 should advance on an average of $2,300 yearly just to make cost-of-living adjustments in employees' salaries.

All costs do not advance at the exact rate of, and in step with, inflation. Some items will not increase at all in a given year. Some expenses can be suppressed or postponed for a time, but over a period of years, the Society's cost of doing business will inexorably follow the inflation of the dollar.

In a professional society such as ours, these increases are painfully apparent because of our dependence on membership dues. This dependence will become almost complete now that the Internal Revenue Service has imposed a "non-

related business" income tax on our exhibit booth and Journal income.

Savings from economies and improved efficiency are absorbed by added new Society programs and responsibilities. Keeping abreast of, and assisting with, new government programs is imperative and has been very rewarding in terms of our members' daily practice. It does, however, add greatly to the Society's expenses.

Report From the School of Medicine to the House of Delegates, Arkansas Medical Society 1969

Winston K. Shorey, M.D., Dean

In preparing this, the second annual informational report from the School of Medicine to the House of Delegates of the Arkansas Medical Society, the attempt is made not to be repetitious in relation to last year's report. At the same time, there are certain fundamental areas of concern and interest upon which attention must be focused repeatedly in order that the School of Medicine achieve its objectives.

It still must be said that the school is underfinanced, understaffed, and without sufficient space and facilities. In spite of this, the student body is enlarging, and the number of M.D.'s graduated each year is increasing. In addition, the number of house officers receiving training in the University Hospital increases each year; the involvement of the faculty in continuing education for practicing physicians has increased in scope; and the past year a new dimension in collaborative effort has occurred involving the School of Medicine with other institutions and the community as a whole.

Faculty

The number of full time faculty continues to be low in relation to the size of the medical student body. The current number of positions for full time faculty salaried through the University is 124, and an additional 33 full time faculty members are provided through the Little Rock Veterans Administration Hospital. The total of 157 full time faculty when related to the current medical student body of 394 gives a student-faculty ratio of 2.5 as compared to the national average of 1.6. It requires the addition of 89 more full time faculty members for the University of Arkansas School of Medicine to meet the national average student-faculty ratio as calculated by the Journal of the American Medical Association. Our School of Medicine needs not only additional operating funds to provide the salaries for additional faculty, but also additional space in which to house them.

A degree of progress was accomplished in providing additional faculty strength during the past year, this occurring through federally financed grants, the V.A. Hospital, and other programs. There are 12 more full time faculty positions now than were reported at this time a year ago.

We have lost two faculty leaders through death: Dr. Willis E. Brown, Chairman of the Department of Obstetrics and Gynecology, and Dr. Calvin J. Dillaha, Chairman of the Division of Dermatology. Dr. Brown provided leadership for the Department of Obstetrics and Gynecology for a period of twenty years during which time his influence was felt by a large number of medical students, and many of those now practicing the specialty of Obstetrics and Gynecology in Arkansas gained their training at his direction. A search committee has been appointed to secure an individual to fill the vacancy created by Dr. Brown's death. Dr. Dillaha, on a voluntary basis, provided leadership for the Division of Dermatology in every sense that is required in academic medicine. He and his associates have taught medical students, trained residents in dermatology, provided the patient services necessary to conduct the teaching programs, conducted a productive research program, and have entered into the general activities of the School of Medicine essential to its overall growth and progress. The vacancy created by Dr. Dillaha's death has been filled by the appointment of Dr. G. Thomas Jansen as Chairman of the Division of Dermatology, and we are confident that under Dr. Jansen's leadership the program in Dermatology will continue to flourish.

Students

The School of Medicine commenced the fall term with a total of 394 students of whom 110 were in the freshman class and 107 were in the sophomore class. This is an increase by ten students in the second year as compared with a year ago. This number of sophomore students is of even greater significance when it is realized that prior to two years ago the loss in students between the first and second year averaged between 15 and 20 per cent. In 1962 we graduated 74 M.D.'s. Last June we graduated 86. This coming June we anticipate graduating 91 and the

following June, 97. After that we are confident of having 100 to 105 graduates annually with the current admission rate of 110 freshmen.

The decrease in attrition between the first and second years has a major implication for both faculty and facilities involved in teaching clinical medicine. This coming year the size of the classes taught by the faculty in the clinical disciplines will have increased by 35 per cent since 1962. The number of hospital beds, the space for outpatient instruction, and the number of faculty involved in teaching all must be increased to meet this additional number of students.

Curriculum

The teaching program for medical students is undergoing intensive study by a Curriculum Committee which will be submitting recommendations for alterations in curriculum structure in the near future. It can be anticipated that these recommendations will be oriented toward increasing the relevance of a medical student's educational program to his future practice. Provision will be made for a student to have a greater degree of election in his own education.

Continuing Education

A comprehensive program in continuing education for physicians in practice is being planned by the School of Medicine with advice and counsel from appropriate committees of the Arkansas Medical Society. Support for this program is being sought from the Arkansas Regional Medical Program. When brought to fruition it will provide faculty and other personnel to conduct the program, opportunity for all physicians in the state to participate, and program administration that responds to local needs and desires for continuing medical education.

During the current year an effort is being made to expand the scope of continuing education utilizing existing resources. An offer to provide faculty speakers for county medical societies was received with enthusiasm by two societies. A rotation of faculty members provides scientific programs for meetings of the Jefferson County Medical Society. Four meetings of the Pulaski County Medical Society have been set aside for continuing education with courses conducted by faculty of the School of Medicine.

Community Medicine and Family Practice

Support is being sought through regular state funding channels and from other sources to establish a Division of Community Medicine and Public Health as an academic unit of the School of Medicine. Responsibilities of this division will include:

(1) Teaching and investigation in the area of delivery of health services.
(2) Teaching and investigation in the areas of preventive medicine and public health.
(3) The development and conduct of a training program for family practice. Development of a family practice program has received a major boost through recent approval of a specialty board in family practice.

Arkansas Caduceus Club

Through the years many suggestions have been stated, and abortive attempts have been made, toward the establishment of an organization to include graduates of the School of Medicine and others. Purposes for which such an organization has been proposed include:

(1) Moral and financial support for the School of Medicine.
(2) Communication between the institution and individuals interested in its welfare.
(3) Provision of activities which are enjoyable to individuals who have received their education or training within an institution.

This past year the Arkansas Caduceus Club came into existence with guidance from an advisory committee representative of older graduates, younger graduates, current student body, current house staff, and faculty. Membership is without dues and includes graduates of the School of Medicine, house staff, faculty and other interested physicians. Projects already initiated include:

(1) Reunions of five-year classes this spring in conjunction with commencement.
(2) A homecoming day next fall in conjunction with a football game.
(3) A social gathering at the AMA annual meeting in New York in June.
(4) A collaborative effort with AMA-ERF to increase contributions made through AMA-ERF to the University of Arkansas School of Medicine.

The Future

Plans for future expansion of the Medical Center are being formulated with the assistance of a firm of professional Medical Center planners. The projected expansion will provide additional

space badly needed not only by the School of Medicine, but also by the other academic units at the Medical Center.

At the time this report went to press, the biennial request for funds from the State Legislature had not been acted upon. Included in this request were funds to place the University Hospital in complete operation, replace obsolete equipment in use since the Medical Center opened in 1956, provide appropriate salary increases for existing personnel, and provide for an additional 26 faculty positions.

The future of our School of Medicine and the entire Medical Center rests not only upon support from the State Legislature, but also upon an increase in funds from federal and private sources. The financing of a modern Medical Center is a very complex operation to which many agencies must contribute. Conversely, a modern Medical Center engaged in teaching, service and research provides benefits at the community, state and national levels.

Report of the Arkansas State Medical Board January 1, 1968—January 1, 1969

Joe Verser, M.D., Secretary

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The officers and members are as follows:

Wm. A. Snodgrass, Jr., M.D., Chairman
John F. Guenthner, M.D., Vice-Chairman
Joe Verser, M.D., Secretary-Treasurer
Frank M. Burton, M.D.
Hugh R. Edwards, M.D.
Earle D. McKelvey, M.D.
Ross Fowler, M.D.
George F. Wynne, M.D.
C. Stanley Applegate, M.D.
Eugene R. Warren, Attorney

A yearly financial report of the Board's activities, prepared by Johnston, Freeman & Company, Certified Public Accountants, was sent to and aproved by the Council of the Arkansas Medical Society.

The Board investigated every case of violation of the Medical Practice Act reported to the Secretary during the year. Following is a summary of the Board's proceedings.

Physicians registered for 1968:	
Resident	1,758
Non-Resident	1,158
Physicians licensed by examination	82
Physicians licensed by reciprocity	34
Physicians certified to other states	111
Licenses revoked for non-payment of annual registration fee	15
Licenses suspended for non-payment of annual registration fee	43
Physicians license revoked for violation of the Medical Practice Act	1
Physicians placed on probation	3
Injunctions obtained	3
Criminal convictions obtained for practicing medicine without a license	2
Cases pending in court for practicing medicine without a license	2
Pending investigations for practicing medicine without a license	2

A financial statement prepared by Johnston, Freeman & Company, Certified Public Accountants, follows.

ARKANSAS STATE MEDICAL BOARD
STATEMENT OF RECEIPTS AND DISBURSEMENTS
For the Year Ended June 30, 1968

Cash at beginning of year:		
Bank of Weiner—certificate of deposit No. 362	$ 8,553.71	
Bank of Weiner—certificate of deposit No. 392	2,746.35	
Bank of Harrisburg—checking account	12,199.96	
Bank of Harrisburg—certificate of deposit No. 374	12,040.34	
Cash on hand	55.00	$35,595.26
RECEIPTS		
Registration fees—resident	$ 3,564.00	
Registration fees—non-resident	4,968.00	
Reciprocities	3,950.00	
Certifications	1,695.00	
Primary examinations	2,512.50	
Final examinations	2,141.00	
Four-year examinations	400.00	
Other	11.00	
Directories	746.12	
Physical therapist—registrations	150.00	
Physical therapist—dues	177.00	
Medical corporation—registrations	300.00	
Medical corporation—dues	170.00	
Temporary permits	465.00	
Interest earned on certificates of deposit	1,050.32	22,299.94
Total cash available		$57,895.20

DISBURSEMENTS			
Salary—secretary	$3,850.00		
Less: Withholding and FICA taxes deducted	639.43	$ 3,210.57	

Salary—clerical	4,720.00		
Less: Withholding and FICA taxes deducted	820.91	3,899.09	
Withholding and FICA taxes paid		1,949.88	
Surety bond premium		50.00	
Salary and expense—Board Meeting (Schedule 3)		2,846.44	
Attorney fees and expense		3,316.00	
Office rent		660.00	
Office supplies, postage, telephone and telegraph		1,472.71	
Printing and expense of directors		1,108.00	
Auditing		225.00	
Federation dues		200.00	
Federation Board Meeting Expense		200.00	
Clerical travel expense		60.00	
Other		118.50	19,316.19
Cash balances at end of year:			
Bank of Weiner—certificate of deposit No. 362		$ 8,553.71	
Bank of Weiner—certificate of deposit No. 392		2,746.35	
Bank of Harrisburg—checking account		14,179.98	
Bank of Harrisburg—certificate of deposit No. 531		12,582.05	
Cash on hand		516.92	$38,579.01

Summary of Arkansas State Department of Health Activities — 1968

John T. Herron, M.D., State Health Officer

During the year no major outbreaks of communicable diseases occurred within the state. However, Arkansas has numerous public health problems to cope with and solve. The population of the state is increasing, our schools, industry, hospitals, small and large businesses, along with increased agricultural endeavors are all accompanied with additional health problems and some of them are new to us. Our senior citizen age groups are increasing in numbers requiring more and more medical care and health services. However, the Arkansas State Department of Health, its affiliated local health departments, local physicians, hospitals, nurses and allied service agencies and associations are doing everything possible to meet the many challenges.

During 1968 the State Department of Health suffered many disappointing frustrations through a considerable loss of professional and other personnel to industry and other agencies for higher salaries and appealing fringe benefits. Our overall budget and manpower does not approach the minimum to execute a minimal adequate program and services. The department will, however, continue to carry out its duties and responsibilities in protecting the public's health.

The Bureau of Laboratories in 1968 eclipsed fiscal year 1967 by processing 161,847 specimens and conducting 292,628 tests and prepared 670,025 reports.

The Division of Communicable Disease Control noted an overall decrease in communicable diseases, with the exception of hepatitis during the past fiscal year. The most significant decrease was in typhoid fever and new carriers discovered.

Since early in 1967 the *Communicable Disease Control Division* has been waging a war against measles in Arkansas. Measles immunity has been extended to approximately 168,000 children since this campaign began and the battle is not over yet. One of the Division's goals is to completely eradicate rubella measles within the State of Arkansas by the end of 1969 through the means of mass measles campaign in every county.

Strides continue to be made in the control of venereal disease as the number of reported cases of early syphilis fell to 137 during the past fiscal year.

The Division of Veterinary Public Health through its information media, "The Arkansas Animal Morbidity Report," provides useful data monthly, relative to all types of animal diseases. During fiscal year 1967-68, 87 cases of animal rabies were reported as diagnosed by the State Department of Health. This is a decided decrease over the past fiscal year and might be attributed to both the vaccinations given against rabies to pet animals and the cycle through which rabies in wild animals may be going.

Health Moblization Planning enjoyed another productive year in Medical Self-Help Training; 31,401 individuals completed the course. Also 1,062 individuals received cardiopulmonary resuscitation training.

The Emergency Medical Stockpile Program after undergoing revision has originated and designed two means through which to provide the immediate availability of essential health supplies in the event of a major disaster. The two parts of the program are the Packaged Disaster Hospital, known as the P.D.H. and the Hospital Reserve Disaster Inventory, referred to as the H.R.D.I. Unit. To date of the fifty-five community hospitals in Arkansas designed as candidate hospitals for participation in this Stockpile Program, thirty-five of these hospitals are partici-

pating in the program with affiliation with either a P.D.H., H.R.D.I., or both. When fully implemented, the Emergency Stockpile Program will greatly increase the disaster patient care potential of the State of Arkansas.

During the past fiscal year, the *Division of Tuberculosis Control* has been incorporated within the Division of Communicable Disease Control in an effort to execute a more efficient operation. The results in tuberculosis control this past fiscal year surpassed those of 1966-67 in that 874 chest clinics were held and 8,533 individuals attended these clinics. Last year only 771 clinics were held and 7,825 attended these. It should be noted that while more clinics were held and more people attended we have only 37 qualified consultants conducting these clinics, which is the exact same number of qualified consultants we had in the fiscal 1966-67. An added feature to the tuberculosis program is the pilot project which is operated at the Jefferson Memorial Hospital in Pine Bluff. A total of 196 tuberculosis patients were admitted to Jefferson Memorial Hospital in Pine Bluff during fiscal year 1968. Eighty-seven of the 196 tuberculosis patients were new treatment cases and they were hospitalized an average of 38 days; 13 retreatment cases were hospitalized an average of 67 days. We feel that this method of management results in an excellent initial medical response and patient cooperation. It is also economical to the state and promotes continuity of medical care following hospital discharge.

The Public Health Nurse is the real workhorse of the Health Department, and this is reflected by their work load. During the past fiscal year 58,249 individuals were admitted to nursing service and a total of 146,995 nursing visits were made to these persons by 173 public health nurses, which in itself is an increase over last year's 170 public health nurses. In addition to the above activities, the nurse also held 1,678 clinic sessions where nursing services were given to 33,574 individuals. Besides all of the above mentioned activities the public health nurses completed 325,568 series of immunizations protecting people against pertussis, tetanus, diphtheria, smallpox, polio, measles, and typhoid.

The Division of Chronic Disease Control continued to carry out, with the aid of the Public Health Nurses, the Home Health Service Program, and during the past fiscal year 4,098 individuals were admitted to this service and these people received 26,672 nursing visits. The Division extended its diabetes screening program from 263 persons tested in ten counties in fiscal year 1967 to 1,304 persons in thirty-six counties for fiscal year 1968. As of January, 1968, the half-way point of this past fiscal year, streptococcal throat swab kits were made available to each local health unit. Physicians throughout the State were notified that these kits were available for their use and could be obtained at their local health units. The program has experienced a relatively good start; however, we feel that as of yet the program has not been operating at its full capacity.

It would be unfair to mention the Chronic Disease Control Division and not say at least a few words about the services offered by the Division's physical therapists. This past fiscal year the physical therapists gave treatment to 987 people in the state, of this number 676 were over 65. These same 987 people received a total of 1,115 treatments. The work load mentioned above keeps the physical therapists busy and they keep the patient load at about the same level at all times, for when one patient is discharged another is quickly added.

Man's environment long has been recognized by health authorities as being a major factor in our health and well-being. In the Health Department the task of regulating man's environment is the responsibility of the *Bureau of Environmental Engineering* and its various divisions. In quest of a safer environment in the past fiscal year, the Bureau of Environmental Engineering reviewed and approved plans for 344 public water supplies which are now or will be soon serving an additional 50,000 citizens in the state. This brings to 1,100,000 the total being served by public water works. Also 233 public sewage system plans were approved in fiscal year 1968, which brought to 890,000 the total people served by public sewage systems. In addition to the above, 37 swimming pool plans were approved.

The Bureau of Environmental Engineering has jurisdiction over the Plumbing Division. *The Division of Plumbing* continues to progress in all phases of the overall program. There were 1,190 inspections made in the fiscal year 1968, which is an increase of 200 inspections over last fiscal year. The Division is proud of the continued upgrading of the State Plumbing Code and of the general overall quality of work of

our state's plumbers. This is due in part to the 115 schools which were conducted for plumbers throughout the State, by representatives of the Plumbing Division.

The Bureau of Environmental Engineering also has jurisdiction over the Division of Food and Drug Control. *The Division of Food and Drug Control* has endeavored to plan and conduct a program designed for the protection of the consuming public, the year round. In an effort to protect the consuming public, Food and Drug sanitarians from the state office conducted 1,424 inspections of establishments catering to the public. The Division has noted an increase in the incidence of drug related cases; however, due to the lack of personnel, work in this area is not being done.

The Bureau of Environmental Engineering has last, but by no means least, under its jurisdiction the *Fluid Milk and Dairy Products Division.* The Division of Fluid Milk and Dairy Products responsibility is to provide to the inhabitants of Arkansas a safe and adequate source of milk and milk products, by preventing the transmission of milk-borne diseases, and by providing the sanitary control in the production, transporting and processing of milk and milk products. In its efforts to provide this assurance 4,594 samples of milk and milk products were taken necessitating 21,361 total tests being performed.

The Maternal and Child Health Division plays a major role in the health of children in Arkansas. Local physicians assisted by public health nurses conducted maternity clinics attended by 2,080 expectant mothers.

Public health nurses served 548 premature infants born in Arkansas last year. Approximately 1.08 per cent of the infants born alive in the State last year were born prematurely.

Well-child supervision was provided for 6,351 children at well-child conferences in 28 counties. School age children receive much of the public health nursing service in the maternal and child health program; some 18,372 received nursing consultation. Hearing tests were given to 86,187 children in 75 counties, and 113,949 vision tests were given in 75 counties. Hearing and vision testing is conducted by volunteer workers trained and supervised by hearing and vision consultants from the Maternal and Child Health Division.

The Hearing and Speech Center evaluated 256 children and admitted 69 for therapy sessions. The Mental Retardation project evaluated 359 children from all over the State.

A special project for premature infants was carried on in Jefferson County to determine the feasibility of early discharge of premature infants who have stabilized and are gaining weight. There were 971 premature live births admitted to this project and 683 subsequently were admitted to the home care part of the program. Public Health nurses averaged 15 home visits per infant admitted to the home care part of the program.

Since November, 1964, *Family Planning Clinics* have been added to maternity clinics, and initiated in certain areas without maternity clinics. At present there are 46 clinics in 45 counties. Three of these are Regional Family Planning Clinics serving more than one county. To date 4,417 patients have been seen in family clinics. Request forms for participation must be signed by both husband and wife.

Another program which operates under the Maternal and Child Health Division is the Nutrition Service. The Nutrition Service Program is offered in 31 counties; however, all counties may have direct nutrition service upon request to the Nutrition Service office for emergencies such as dietary consultation for a patient with phenylketonuria, diabetes, etc.

The Division of Hospitals and Nursing Homes during the 1967-68 fiscal year licensed 319 facilities including 189 nursing homes with 11,608 beds, 102 general type hospitals with 7,609 beds and 28 other facilities which included chronic disease hospitals, maternity hospitals, a tuberculosis hospital, mental hospitals and infirmaries. Routine inspections made by the personnel of this Division show that the licensed facilities are continuing to improve patient care services.

The Hill-Burton Program is administered by the Hospitals and Nursing Homes Division under the supervision of the State Health Officer. During the past fiscal year 35 projects were active under the Hill-Burton Program.

The Division of Hospitals and Nursing Homes is also responsible for the surveying and recommending of facilities for certification to the Social Security Administration for participation in the Health Insurance Care Program (Medicare). There are 230 facilities of all types certified under this program in Arkansas.

The Bureau of Dental Health continued its programing within the triad of Education, Prevention and Care Services in the 1967-68 fiscal year.

In the educational field, dental literature, films and lectures were given to various school systems in all grade levels. Fifty thousand pieces of literature were made available. Two hundred and twenty-five films were viewed by an estimated twelve thousand individuals. The Director was engaged in lectures to the Medical Center students, the Dental Assistants School, teachers' groups, civic organizations and professional continuing education classes.

In Preventive Dentistry the success of fluoridation of community water supplies has continued. Seventy-five communities are now fluoridating their water supplies. Eight other cities have passed ordinances to fluoridate and are awaiting equipment installation.

Dental Care Services to children of indigent families were given 1,125 individuals. The average cost per child was less than twelve dollars. The children cared for in this program are those who are not eligible for any State or Federal Dental Program, but whose family income falls within the grey area of eligibility.

The Division of Radiological Health, which has as its primary mission to prevent, if possible, or to reduce to acceptable risk levels, biological effects due to ionizing radiation, had another successful year in controlling and regulating sources of ionizing radiation. Thirty-six new licenses were issued during the past fiscal year to individuals and/or companies to use radioactive materials. This brings to 257 the total number of individuals, institutions and companies which are licensed by this Division to use radioactive materials.

The Division of Radiological Health continued its environmental surveillance program by taking 732 samples and performing 1,508 tests on the samples to determine their radioactive material content.

One of the newest Divisions in the State Health Department is the *Division of Safety.* The Division was set up this past fiscal year in order to meet the requirements of the Highway Safety Act of 1966. The Division of Safety is responsible for the regulation of the ambulance industry in the State of Arkansas. A 72-item questionnaire was drafted and an inventory of emergency ambulance service in Arkansas has begun.

Early returns from studies conducted by this Division indicate that the emergency medical service in Arkansas, as it relates to home accidents and highway crashes, has been grossly neglected.

Plans are currently underway for conducting a study of the emergency receiving capabilities of hospitals throughout the State. An analysis of the data received from this study and the ambulance inventory will determine program priorities and objectives.

The other new Division in the State Health Department is the *Division of Meat Inspection.* The Division of Meat Inspection was established within the Department of Health for the purpose of implementing the requirements of Act 320, the Arkansas Meat and Meat Products Inspection Act, at the beginning of this past fiscal year. The Division began at once to develop rules and regulations to cover the sanitary requirements for facilities, equipment and operating procedures of plants presently in operation. The Federal Government in the meantime stepped up its attempt to speed up the states in the field of meat inspection, by passing a new Federal Meat Inspection Bill, The Wholesome Meat Act. This new Federal law stated in essence that the individual states must provide its own Meat Inspection Program which had to be "equal to" the Federal Inspection Program within two years, or be prepared to have the Federal inspectors come in the State and set up their own inspection program. To date the program which was set up by the Division of Meat Inspection has been fully acceptable by the Federal government. The Division believes itself to be one of the leading State programs in this area, eventually all meat processed here in Arkansas which is sold for public consumption will have been inspected by Arkansans for Arkansans.

The completion of the new Arkansas Department of Health Building located at 4815 West Markham Street with spaciousness, new facilities and equipment is a real milestone in the history and progress of public health in Arkansas. All Divisions and Bureaus, programs and services will be housed together and working together in a coordinated effort. The professional and non-professional career workers are indeed grateful to our State government and the individual taxpayer for making this new facility

available to us. We consider it a strong vote of confidence. We will reciprocate by serving our citizens more efficiently by improving established need programs and by developing new programs as they are needed to improve our total health.

Summary of Actions of the American Medical Association House of Delegates

Purcell Smith, M.D., Alternate Delegate

MIAMI BEACH, FLORIDA, December 4, 1968—Discrimination in American Medical Association membership because of color, creed, race, religion or ethnic origin is clearly prohibited by a section added to the Association's By-Laws by the House of Delegates at the 22nd Clinical Convention.

A second amendment adopted in the By-Laws provides a mechanism for implementing the prohibition in case of repeated violations.

In other, equally far-reaching actions, the House directed the Council on Constitution and By-Laws to prepare "appropriate By-Law amendments so that qualified Doctors of Osteopathy may be admitted to full active membership in the American Medical Association" and adopted a Board of Trustees report providing a number of significant avenues whereby "qualified osteopaths may be assimilated into the mainstream of medicine."

Those were only two of the forward steps taken by the AMA House of Delegates during 10 hours and 47 minutes of deliberations in convention at Miami Beach.

Attendance at the House session went from a low of 91% at the opening meeting (223 out of 242 delegates present) to a high of 99% (240 delegates) at the Tuesday and Wednesday sessions when actions were taken.

Ninety-four items of business were brought to the attention of the House, including 22 reports from the Board of Trustees; one from the Joint Conference Committee of AMA and Blue Shield; four from the Council on Medical Service; three from the Council on Medical Education; two from the Council on Constitution and By-Laws; and 62 resolutions from State Medical Associations, scientific sections and individual delegates.

Of the 32 reports, 18 were adopted; three were amended and adopted; eight were accepted for information; one was amended and then accepted; one was approved; and one was rejected. (The House did not pass the Constitutional and By-Law amendments that would have enlarged the Board of Trustees to 16 members by giving the Vice President a vote on the Board.)

Of the 62 resolutions, 12 were adopted; 19 were amended and adopted; six were combined with one or more others into substitute resolutions; three were absorbed into other adopted resolutions; six were referred to the Board or a Council; five were rejected; six were replaced by substitute resolutions; three were replaced by substitute resolutions which were then amended; and two were withdrawn before being sent to a Reference Committee.

The following is a brief summary of actions taken by the House.

Discrimination

The Council on Constitution and By-Laws presented wording for the anti-discrimination amendments in response to the House's wishes expressed at the Annual Convention in June, 1968.

The overall statement on discrimination was added as a new Section 3 of the By-Laws, Chapter I:

> Section 3. Discrimination in Membership. Membership in the American Medical Association or in any of its constituent associations shall not be denied or abridged on account of color, creed, race, religion or ethnic origin.

Provision for disciplinary action was provided by adding this sentence to Chapter XI, Section 11, (D) (7):

> If the Council determines that the allegations (of discrimination against physician applicants for membership) are indeed true, it shall admonish, censure or, in the event of repeated violations, recommend to the House of Delegates that the State association involved be declared to be no longer a constituent member of the American Medical Association.

Osteopathy

The House adopted a Board report stating these objectives with respect to osteopaths:

To "assure the provision of the best possible health care to the American people; make available to students and graduates in osteopathy, education of the same high standards as prevail in undergraduate, graduate and continuing educations programs in medicine; provide avenues whereby qualified osteopaths may be assimilated into the mainstream of medicine."

To achieve those objectives, the AMA recommends that each school of osteopathy improve its teaching program by strengthening its faculty and improving its facilities and resources; invites schools of osteopathy and their accrediting agencies to consult with the AMA and the Association of American Medical Colleges; suggests that accredited hospitals may accept qualified osteopaths on medical staffs; suggests that medical specialty boards may accept osteopaths for examination if they have completed AMA-approved internships and residency programs and have met other regular requirements; requests that as specialty boards declare intent to permit examinations of osteopathic graduates, appropriate AMA-approved residency programs be opened to qualified osteopathic graduates; suggests opening AMA-approved internships to qualified osteopathic graduates; recommends that determination of qualification be made at the level of the medical staff, the county medical society or the review committees and boards having appropriate jurisdiction; and suggests that AMA, State and county societies and other affected organizations "may proceed to make such Constitution and By-Law changes as are necessary to implement the foregoing."

The House also "suggests that each county and state medical society may accept qualified osteopaths as active members and thereby provide for their membership in the American Medical Association" and instructed the Council on Constitution and By-Laws to prepare "appropriate By-Law amendments so that qualified Doctors of Osteopathy may be admitted to full active membership" in the AMA.

President's Report

Dwight L. Wilbur, M.D., President, told the House that "Perhaps our greatest problem is that, in many ways, we in America have tried too hard and succeeded too well. . . . We have progressed so far in so many areas that our people are impatient with the realities of human limitation. They are eager to instantly wipe out poverty, eliminate ignorance, sweep away ill will and violence, replace jealousies and hate with universal good will. Even the specter of death itself is by some considered a temporary and stubborn spite to mankind that will be mastered as soon as new organs are developed or transplanted and new drugs are synthesized."

President Wilbur listed five areas to which he believes the medical profession should give its greatest attention:

1. Making high-quality health care available for everyone in America at as reasonable a cost as possible.

2. Putting a rein on costs by avoiding hospitalizing any patient unless absolutely necessary; reducing the length of hospital stay to the essential minimum; using extended care facilities, nursing homes and home care services more often; stimulating prepayment mechanisms on a voluntary basis; supporting the principle of income tax credits for health insurance; keeping physicians' charges on a basis of usual, customary and reasonable fees, with self-discipline and peer review; and encouraging wider use of reliable automated laboratory procedures, passing the cost benefits on to patients.

3. Developing more reasonable and more realistic expectations by the public.

4. Unifying the medical profession and maintaining constructive liaison with other groups.

5. Planning for an orderly and enhanced future.

Organ Transplants

The House adopted a statement on heart transplantation which makes these five points:

1. The preservation of good medical practice demands that the evolution of therapy be orderly. "The staff of a hospital or medical center planning to initiate such a program should have: (1) adequate background in animal research so that experience is gained as to the problems, potentials and limitations of cardiac transplantation; (2) experience in immunosuppressive therapy and an adequate source of antilymphocyte globulin of known quality; (3) a protocol of clinical research adequate to follow and evaluate the course of the patient."

2. Due regard for the welfare and safety of each individual is paramount.

3. Heart transplantation has brought certain medical, ethical and legal questions into critical focus. "Paramount among them is the determination of death. The right of the prospective donor to the best possible medical care—a right which his potential role as organ donor must not be allowed to abrogate—must remain sacred. The growing ability of medical science to maintain some form of biological function for prolonged periods adds to the difficulty of defining the point of irreversible dissolution.

"The cause of death must be evident and of

an irreversible type. The fact of death must be established by adequate, current and acceptable scientific evidence in the opinion of the physicians making the determination. The determination of death in organ donors must be made by no less than two physicians not associated with the surgical team performing the transplant."

4. The potential for heart transplantation, whatever that may prove to be by subsequent clinical experience, will be "Severely limited by the shortage of potential organ donors. . . . Basic research into the causes of heart disease and of hypertensive vascular disease is . . . of vital importance, since the only ultimate solution to the problem of heart disease lies in its prevention."

5. "Human heart transplantation has been accompanied from the outset by a degree of public awareness and attention almost without parallel in medicine. . . . It is imperative, therefore, that the public be made fully aware of the potentialities and limitations of heart transplantation as those are currently understood and as that understanding is modified by subsequent experience. . . . Only by preserving public confidence in the judgment of the physician, can the orderly progress of medicine be maintained."

The House also approved the Uniform Anatomical Gift Act and urged each state medical association to give it careful consideration "with a view to seeking its adoption in its state." State associations were urged to consider carefully the provisions of the legislation and to make any necessary changes to accommodate their needs.

Health Care Costs and Financing

Following its similar action at the 1968 Annual Convention, the House again accepted for information the report of the Committee on Health Care Financing pertaining to the use of federal income tax credits for the purchase of health insurance and adopted a resolution that the AMA "vigorously promote the enactment of federal legislation which would translate the concept of income tax credits for health insurance premiums into law."

The House asked the Board of Trustees to devote sufficient staff, facilities and funds to develop an "effective program for immediate and on-going studies of health care costs" and to report the status of the program at the 1969 Annual Convention. The Board also was requested to expedite and expand existing programs and, "where necessary, develop new programs."

Recognizing that advertising and promotion of new Blue Shield programs providing broader benefits might be subject to misinterpretation by the public, the House resolved that "any references to 'paid-in-full' coverage clearly identify those services which are indeed covered on a 'paid-in-full' basis and also identify the circumstances under which those services must be rendered."

In two other actions, the House called on "all voluntary health insurance organizations to offer reinstatement of all contracts which were cancelled or converted because the insured individual was over age 65 and eligible for Medicare; and reaffirmed the AMA's belief that "the concept of voluntary health insurance is the most acceptable means of financing health care when applied in keeping with the principles of the American Medical Association."

Matters of Patient and Public Interest

The House adopted the Council on Medical Education's "Special Requirements for Residency Training in Family Practice" and resolved that the AMA "affirm the importance of providing appropriate recognition for family physicians through approval of a primary specialty board for family practice and that the Council on Medical Education be encouraged to continue its efforts with the American Academy of General Practice and the AMA Section on General Practice to achieve this goal."

In other actions particularly aimed at patient care and public well-being, the House:

. . . Adopted a report stating that the AMA has proposed to the National Center for Health Statistics a meeting among concerned groups to review a revised certificate of live birth.

. . . Endorsed in principle the use of a multipurpose health record form in providing medical examinations for young people.

. . . Resolved that the AMA "again urge its members to play a major role against cigarette smoking" and that the AMA "take a strong stand against smoking by every means at its command."

. . . Encouraged the American Association of State Highway Officials and the Federal Highway Administration to work toward the adoption of the International System of Highway Signs which avoids the use of language in order to make the visits of foreigners to the United

States "as safe and pleasant as possible."

. . . Urged constituent societies in those states where existing laws do not permit minors to consent to treatment for venereal and other communicable diseases "to seek the enactment of such legislation."

Education

The House adopted a report of the Board of Trustees offering its comments (approval or suggested amendments) on many of the recommendations of the Report of the Citizens Commission on Graduate Medical Education. However, the Board pointed out that "it is neither possible nor desirable to make final recommendations . . . at this time on some of the more controversial portions of the Report. These portions deserve further careful study and deliberation by all concerned individuals, institutions and organizations."

A program for formal recognition by the AMA of physicians who participate in continuing medical education was adopted, along with a proposal to fund the recognition award.

"A physician may, upon request," the report said, "receive the recognition award at the completion of three years of graduate training in AMA-approved programs, or the equivalent in research activity or in educational programs leading to further advanced degrees in medical sciences."

The House recommended that the Medical Education for National Defense program "be re-instituted at the earliest possible date; direction be the responsibility of the Department of Defense; adequate financial support be provided with the appropriate safeguards to assure that funds will be used solely for the purposes of the program; and that such support be allocated to the medical schools on the basis of program merit."

And the House also encouraged the creation of continuing high quality service-career physicians "through specific support of existing medical school expansion to include selected, service career-oriented students."

Allied Health Personnel

The House agreed with the Council on Health Manpower regarding the need for physician prescription and supervision of all ancillary services provided in the hospital by adopting a Board of Trustees report on the utilization of paramedical personnel. In adopting the report, the House stated that "the medical staff should concern itself with contractual agreements between various allied health professionals and the hospital only insolar as, and to the extent that, such agreements tended to remove the provision of ancillary services from the prescription and supervision of the physicians."

Another Board report adopted by the House, based on findings of the Council on Health Manpower, considered the phrase "related healing arts" as used in the declaration of purpose in PL 89-749. The report stated that "it is apparent that the context in which this term is used offers assurance that the patterns of medical practice in the country will not be altered by PL 89-749." Consequently, the Council recommended "that any definition of the term 'related healing arts' should be made at the state and local level because of the important variations in practice within the country."

In regard to nurses, the House resolved that "state and county medical societies be encouraged to study the problems relating to nursing education and to seek at the local level all available sources of financing support for hospital nursing schools" and that the AMA "take appropriate action in consultation with professional nurses' associations and the American Hospital Association to encourage increasing enrollment in diploma schools."

Medicine and the Government

The House accepted the information reports of the Council on Medical Service regarding neighborhood health centers under the Office of Economic Opportunity, Public Health Service and Housing and Urban Development, and on Project Headstart.

In addition, the following resolutions were adopted by the House:

. . . That the AMA "seek to have Congress phase out federal health care programs which overlap and reduplicate Medicaid."

. . . That PL 89-749 be amended to require that "a substantial percentage" of executive boards or councils "at all levels of planning, federal, state and regional, both A and B agencies, be actively practicing private physicians, nominated by organized medicine."

. . . That county and state medical associations, through the AMA, supply when requested "the names and biographical data of physicians who are qualified, willing and able to accept appointment of government service, full or part time."

. . . That the Board of Trustees "consider sponsorship of periodic conferences or workshops on public affairs for the continuing education and benefit of medical society leaders and physicians throughout the nation."

. . . That the AMA "exert every effort to bring about the elimination of unnecessary documentation of medical services by the physician, hospital and fiscal intermediary on Medicare and Medicaid patients."

. . . That all school administrative bodies be encouraged to consult with "competent medical authorities prior to initiating and conducting programs involving any medical aspects funded under the Elementary and Secondary School Act."

Mostly of Internal (AMA) Interest

State and county medical societies were urged to establish uniform membership classifications based on AMA membership categories described in the By-Laws.

A report of the AMA-ERF and a special financial report of the Institute for Biomedical Research were adopted by the House, along with a resolution that a liaison committee of 10 members of the House "meet during the time of each convention of the House, or more often if necessary, with the President and Directors of the AMA-ERF and the Director of the Institute for Biomedical Research for review of current programs of the AMA-ERF and consideration of suggestions for broadening the base of support for the AMA-ERF, and to report the results of such meetings to the House at each convention."

A progress report on the management survey of the AMA which is now under way was adopted by the House. Also adopted was a resolution that "the Board of Trustees be requested to continue to observe closely the activities of the Division of Public Affairs since this division is newly formed with newly defined functions and activities; and . . . that the House of Delegates receive in advance a comprehensive report on the management survey and its implementation from the Board of Trustees prior to the next Annual Meeting."

The House recommended to the Board that "the office of Executive Vice President be filled, if possible, by a Doctor of Medicine who is an active member of the American Medical Association at the time of his appointment and who possesses the necessary managerial qualifications."

The House resolved that "the Executive Vice President prepare a report for the sessions of the House of Delegates as frequently as necessary but at least for each annual meeting and that the report be submitted in written form and referred to the appropriate Reference Committee" and that he be prepared "to present a brief oral summary of his report on request of the House."

Other resolutions adopted included these:

. . . That the Board continue and expedite "its present activities to study and search for solutions to problems of medical professional liability."

. . . That the AMA, through its representatives on the JCAH, "take action to assure that accreditation be granted only to those institutions where the rights of the medical staff are not abrogated."

. . . That every county and state medical society initiate and maintain a "continuing program of active liaison with students at medical schools within their jurisdictions, preferably through active functioning chapters of SAMA."

. . . That the House go on record "favoring exploration of" establishing more uniform reciprocity arrangements among all states with respect to physician licensing.

. . . That the AMA adopt the following definitions and distribute them to all state medical associations for their individual consideration and guidance:

" 'Usual' is defined as the 'usual' fee which is charged for a given service by an individual physician in his personal practice (i.e., his own usual fee); 'Customary' is defined as that range of usual fees charged by physicians of similar training and experience for the same service within a given specific limited geographic or socio-economic area; 'Reasonable' is defined as a fee which meets the above two criteria, or, in the opinion of the responsible local medical association's review committee, is justifiable in the special circumstances of the particular case in question."

The House also resolved that "whenever these terms are used in contracts or laws, that they be specifically defined in those documents."

Miscellaneous Actions or Reports

A report on the Woman's Auxiliary was given to the House by Mrs. C. C. Long, President; one on AMPAC was presented by Blair J. Henningsgaard, M.D., AMPAC President, and Alvin J.

Ingram, M.D., Secretary of the Board of Trustees, reviewed the Association's Annual Report from the delegates' handbook.

Remarks of the Former Executive Vice President

Following the adoption of three resolutions commending F. J. L. Blasingame, M.D., for his services to the AMA as delegate, trustee and Executive Vice President, Dr. Blasingame addressed the House briefly at its opening session.

He called for a constitutional convention to re-evaluate the working of the AMA to equip it better for the "Herculean tasks" it faces, adding that the existing committee system is inadequate for the work. "This is a time for action, clarification and soul-searching for the AMA," he said, adding that the Association "can't afford to be concerned with internal bickering."

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April, 1969

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 65 No. 11

FORT SMITH, ARKANSAS

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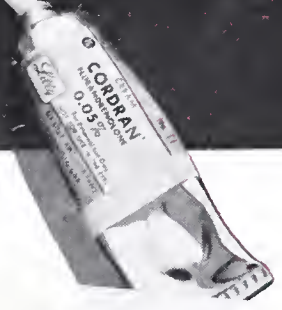

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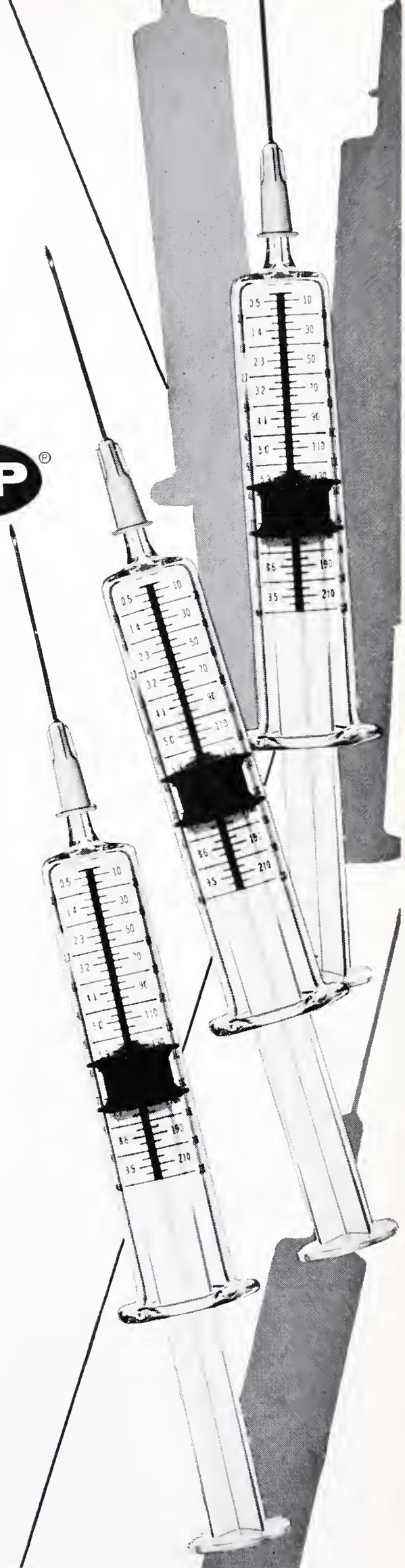

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Excision of Carcinoma of the Head and Neck: Immediate Reconstruction

Herbert Conway, M. D.

In the surgery of malignant tumors of the head and neck, the best results are obtained if the surgeon is trained in the techniques of reconstructive surgery. This statement is made unequivocally, because of the fact that the knowledge of reconstructive surgical techniques brings more carcinomas within the scope of curability by surgical excision and also rehabilitates completely patients who have undergone extensive surgery for grave malignancies either on the surface of the head and neck or within the oral and pharyngeal cavities.

Activated interest by the American public in the fact that cancer is one of the leading causes of death has been reflected in the intensified research which is directed at solution of the etiology of carcinoma. It is within the realm of reasonable probability that these laboratory efforts may bring about a chemotherapeutic or immunity-producing agent which will at least limit the rate of growth of cancer and its metastases. Meanwhile, carcinoma is looked upon as a parasitic disease which, in the majority of cases, falls within the scope of excisional surgery. Significant increase in recent years in the duration of postoperative survival without evidence of disease has offered some satisfaction in the intensified attack by surgeons on cancer. Resection of primary lesions together with regional nodes, i.e., those in the direct lymphatic routes of extension, has been the basic principle of this surgery; extended in selected cases to *en bloc* excision of the lesion, nodes and intervening tissue and even to the resection of metastases. The development of thoracic surgical techniques has advanced the surgery of breast cancer so that the final pathway of extension, formerly inaccessible, the mediastinal nodes, now may be excised with the mass according to the technique of Urban.

There is a distinct feeling that the field of carcinoma of the head and neck, the oral cavity and the pharnyx has not been subjected to the same degree of intensified clinical attack as have carcinomas in other portions of the human body. In all probability the fact that carcinomas of this region are caught in the interplay between specialists of widely different categories has been a factor in this. Nation-wide uniformity in therapeutic method for malignant lesions of the oral cavity and head and neck is lacking. There still is strong controversy (for many of the intra-oral carcinomas, as well as the skin carcinomas) as to whether a given tumor should be treated by X-ray, by radium or by surgery. Lack of uniformity in the policies of leading hospitals and medical centers has not helped to clear up this situation. Unquestionably, the greatest deterrent to radical surgery as the ideal method of treatment has been the fear of or concern over the mutilating effect of such procedures. The competent surgeon hesitates to create gross facial defects even if the objective is the eradication of cancer, and the referring physician hesitates to recommend such treatment. As a result, less drastic and less effective modes of treatment are employed. Surgeons generally seem to be remiss in failing to master the reconstructive techniques of correction of defects of the head and neck. If the principles of reconstructive surgery are taken into consideration before radical surgery is employed, the surgeon will exercise much wider excision of carcinoma of the head and neck, thus creating background for the reporting of greatly improved follow-up results. This type of thinking is no different from that associated with the development of successful surgical extirpation

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of carcinomas of the interior cavities of the body. For instance, carcinoma of the pancreas was looked upon as an inoperable lesion until the ingenious reconstructive steps of the Whipple operation made it possible to re-establish continuity of the important gastrointestinal, hepatic and pancreatic tracts after excision of important structures and regional tissue in the upper abdominal area. Similarly, carcinomas of the mid esophagus and lower esophagus became resectable lesions when Garlock developed the technique of replacement of lower esophageal continuity by thoracic relocation of the stomach. It is clear then that successful radical surgery must employ reconstructive steps in the replacement of tissues or organs lost by surgical excision. the employment of this principle in the surgery of carcinoma of the oral cavity may require preparation of a tubed pedicle of skin and fat. This is usually the case when oral carcinomas of low-grade malignancy have invaded the cutaneous surface. In many instances suitable coverage of double-faced soft tissue may be obtained immediately through the use of a small rotation flap or, for larger lesions, a temporal flap. In others, a flap from a distance must be employed because of topographic details. In cases in which information revealed by history and biopsy indicates that the carcinoma is of relatively low-grade malignancy and is of slow growth, it is justifiable to delay the radical excision two weeks or so to prepare a pedicle or flap over the acromiopectoral region. The availability of such a flap changes the whole approach of the surgeon to the excisional procedure. There need be no hestitancy in the wide excision of skin, subcutaneous tissue, muscle, bone and mucous membrane adjacent to the lesion, and the cure of the carcinoma unquestionably depends upon the generosity of the surgeon's sacrifice of such tissues. Moreover, when such a soft tissue flap or pedicle has been readied in advance, immediate bone grafting in substitution for malar or mandibular defects may be employed.

The rapidly growing and highly malignant carcinoma is one which is not suited to this plan. Many of the patients who are suitable for the plan are denied the greatest benefits of radical surgery or are left in the misery of unacceptable facial deformities or complications such as salivary fistula.

The primary premise still stands—that the reconstructive surgeon is better equipped to do excisional surgery on tumors of the head and neck, whether they are on the surface or within the oral cavity, and that it is not justifiable to do excisional surgery for carcinoma without planned anticipation that the individual can, within a reasonable time, be brought back to the sphere of full commercial and social activity.

Limitations of Blood Replacement With Electrolyte Solutions

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Arch Surg 98:49-52 (Jan) 1969

A randomized, prospective, controlled study of 100 patients losing more than 400 cc of blood at operation is presented. Blood loss was replaced with blood in 52 and Hartmann's solution in 48. The amount of Hartmann's solution given was controlled by repeated hematocrit determinations and blood was given when hematocrit fell to 28 or below. Only 7 of the 48 saline-treated patients required blood, although the average blood loss in 20 patients losing more than 1,000 cc was 1,880 cc. No pulmonary edema or increase in morbidity or mortality was seen in the saline group. Use of the hematocrit seems to be a safe and convenient method for monitoring replacement of blood loss with noncolloidal solutions.

Simulated Tuboplasty Using Tissue Adhesive On Uterine Horn in Canines*

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Harold Farris, D. V. M.

Until recently the small percentage of pregnancies resulting from surgery on occluded fallopian tubes in the human discourages the use of this operation. However, only continued experience in techniques and procedures will solve the problems encountered.

We believe that the Methyl-2-Cyanoacrylate Monomer used as a tissue adhesive will be the answer to the tuboplasty performed in the human to restore tubal patency. Its use is indicated in those cases where the tubes have been previously ligated and the patient subsequently has the tragic loss of children or desires another child after remarriage.

Before using the new tissue adhesive in this type surgery on the human, we felt that experimentation on the uterine horn in the dog would simulate the fallopian tube in the human and could be satisfactorily used for the operative procedure. Also, we felt that this surgical technique, using the tissue adhesive rather than suture material, could be adequately appraised at a later date to study tissue reaction by re-operating the dogs and removing that segment of the uterine horn where the original end-to-end anastosmosis was performed.

MATERIALS AND METHODS

Six female dogs of mixed breed, ranging in size from small to large, were studied. Surgery was performed on these dogs and then the dogs later were re-operated from postoperative periods of 4 to 8 weeks for study of the uterine horn tissue reactions in an attempt to evaluate the efficiency of the tissue adhesive. All the animals were cared for according to the standards of the National Society for Medical Research.

The laparotomy was performed using the usual 4-inch midline incision. By placing the animals in the Trendelenburg position, the uterine horns were easily identified and brought into the operative field. Approximately 1 cm. of the middle one-third of the uterine horn was resected on one of the uterine horns (Fig. 1), leaving the other in normal condition. A large #1 plain catgut suture

SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

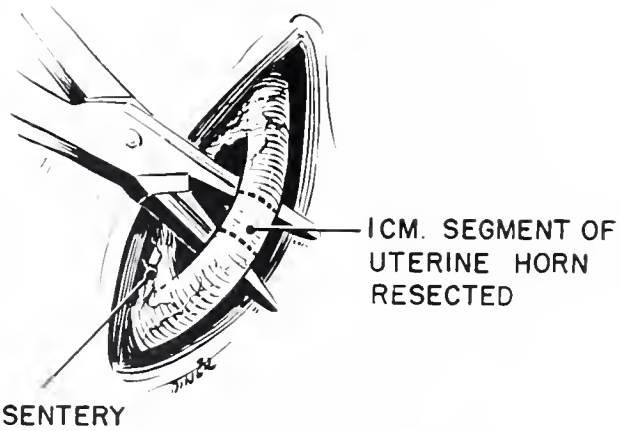

Figure 1

was then threaded into the proximal and distal ends of the uterine horn for a distance of several centimeters to serve as a splint (Fig. 2). A tube

SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

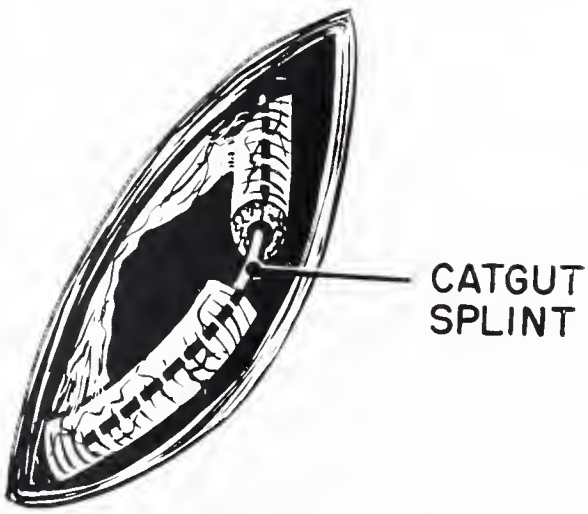

Figure 2

with large needle applicator attached containing the tissue adhesive was then used to place a small amount of the thick liquid substance on the cut ends of the uterine horn (Fig. 3). The cut ends of the uterine horn were then pushed together over the catgut splint and allowed to coaptate (Fig. 4). The adbominal incision was then closed in the usual manner and the dogs re-operated at intervals

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SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

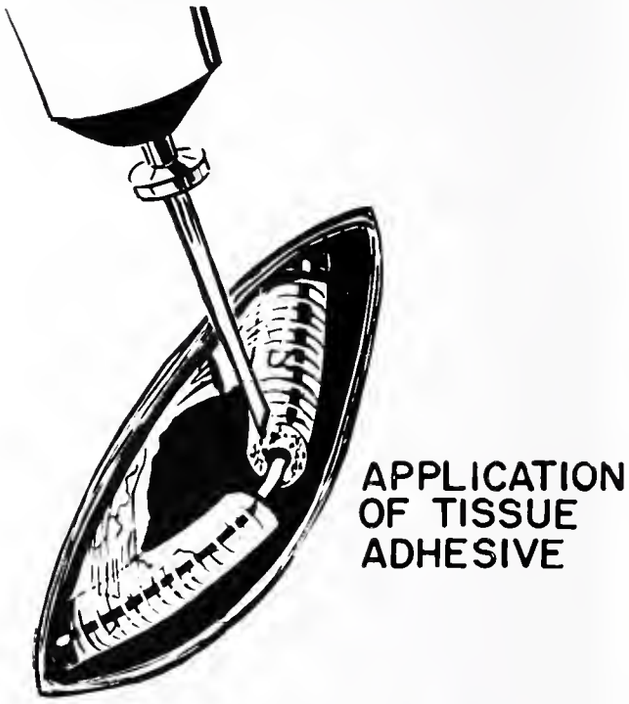

Figure 3

SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

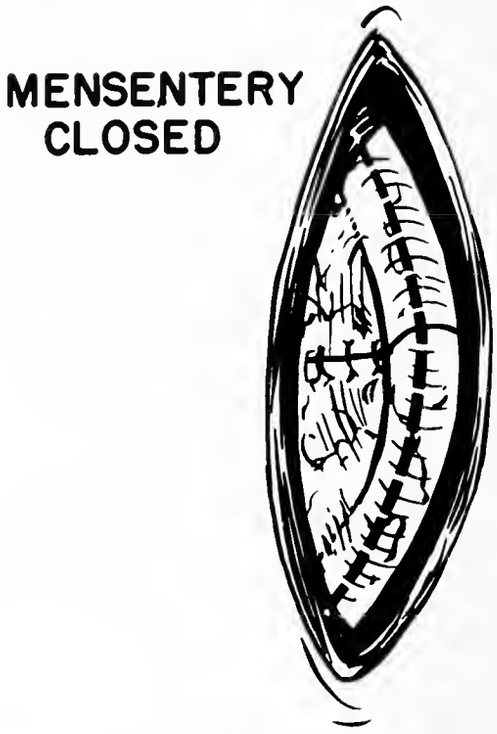

Figure 4

of one, two and three months in order to study tubal patency as well as tissue reaction.

RESULTS

The uterine horn tissue reaction and patency were studied in six of the operated female dogs at intervals of four to eight weeks. All uterine horns were found to be patent and it was interesting to note that the tissue adhesive was not irritating to the surrounding tissue in that no adhesions were encountered on re-operation. In fact, the animals were afebrile postoperatively and no infections were encountered. This leads us to believe that there is some merit in the findings of some investigators that Methyl-2-Cyanoacrylate Monomer is self-sterilizing, being both bacteriostatic and bacteriocidal.

SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

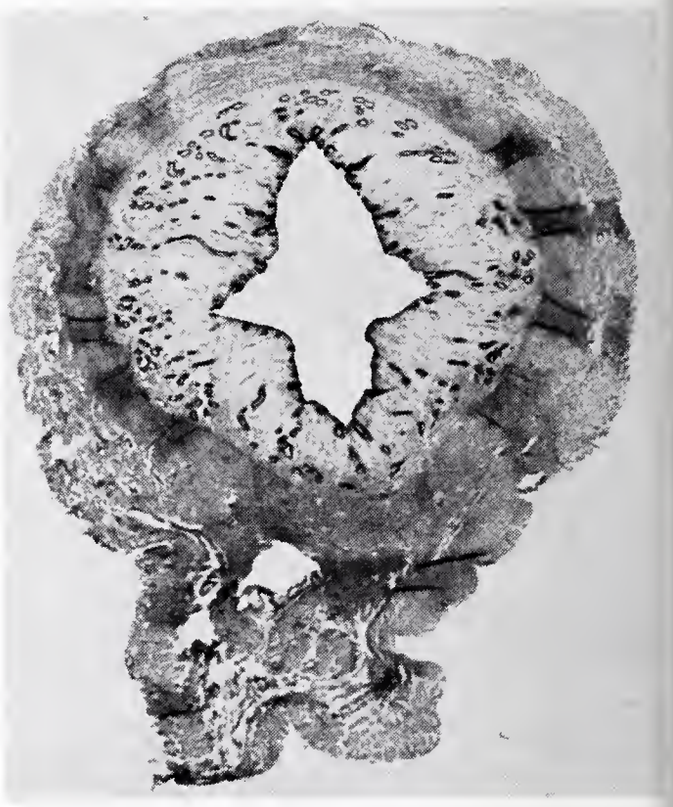

Figure 5
"Cross Section of Normal Uterine Horn in The Dog"

All uterine horns that had been re-anastomosed with tissue adhesives were studied pathologically in the six dogs after they were re-operated from four to eight weeks after the original surgery was performed. The findings were the same in all the tissue sections and were reported as follows:

> "The sections all show the endometrium to be intact, which is no different from the normal control (Figs. 5 and 6). The myometrium always contained irregular vacuoles in which there were strands of slightly basophilic material and a few foreign body giant cells. These spaces were lined at least partially by foreign body giant cells, some of which contained flaky strands of slightly basophilic material which is assumed to be the material used to fix the two cut ends of the uterine horn together. In all of the cases studied there was no evidence of the intra-

SIMULATED TUBOPLASTY USING TISSUE ADHESIVE ON UTERINE HORN IN CANINES

Figure 6
"Cross Section of Uterine Horn at Site of Anastomosis By Tissue Adhesive"

cavitary plain catgut splints noted in the sections."

DISCUSSION

Recent studies have indicated that the tissue adhesive used in this surgical procedure was hemostatic. We noted in performing the tuboplasty that the mesenteric vessels at the site of anastosmosis had to be ligated. The small serosal vessels, however, showed no oozing or active bleeding after the tissue adhesive was applied. In fact, the tissue adhesive appeared to blanche the tissue out. We had no method of determining the heat generated by the monomer as it was applied, nor were we able to determine the bond strength. It did appear, however, that any undue tension on the anastomotic site in the uterine horn would disrupt the coaptated ends. For this reason we were careful to avoid any tension on the tissues.

SUMMARY

A simulated tuboplasty, using tissue adhesive (Methyl-2-Cyanoacrylate) on the dogs' uterine horn, was performed on six animals. After four to eight weeks the aminals were re-operated and the segment of the uterine horn containing the anastomotic site and excised. This tissue was studied in order to determine patency and reaction to the adhesive. Sections of the anastomosed uterine horns in all six animals showed the horns to be patent and the endometrium to be intact. There were a few foreign body giant cells noted in the myometrium but very little tissue reaction.

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Scalene Node Biopsy

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Arch Surg 98:90-93 (Jan) 1969

Excision of scalene nodes from supraclavicular or subclavian areas were considered as an aid in establishing diagnosis of pulmonary disease. The incidence of positive results depends upon careful surgical dissection and accurate pathological appraisal. The lymphatic drainage of the lungs is described. The survey covered a 13-year period beginning in 1955 with 356 pulmonary lesions and 194 prostatic lesions. The latter is to be reported separately. Seventy-four percent were patients with malginant lesion. In 25%, positive nodes were found. Nodes were palpable in 18% of cases and of these 89% were positive for cancer. Nonpalpable nodes were positive in 11%. Correlation with the modalities of x-ray and bronchoscopy showed radiological examination most helpful in 86% and bronchoscopy in 64%. Nine of 11 (82%) cases of sarcoidosis were positive. Thoractomy (20%) can be avoided. This survey shows that 71% of patients with primary pulmonary Ca were inoperable. There were no surgical complications or deaths in this group of 345 patients. This is an accurate adjunctive histological or bacteriofungal diagnostic procedure for patients with intrathoracic lesions and certain obscure systemic diseases.

STUDIES FROM
THE UNIVERSITY OF ARKANSAS MEDICAL CENTER
THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

Gram-Negative Shock — Its Nature and Treatment

Richard M. Rheinbolt**

INTRODUCTION

Endotoxin shock is that "shock" which results from the endotoxin of gram-negative organisms. It is unlike any other type of shock. Since it tends to occur more frequently in patients who are over fifty years of age, this type of shock is of particular importance to hospitals whose population includes many of this age group.

Although the mean age of those who are treated for endotoxin shock is greater than fifty years, women usually under the age of forty are an exception to the rule. J. A. Morris made this statement:

> "Obstetric sepsis is most commonly associated with attempts at induction of abortion, but septicemia and septic shock are also seen with chorioamnionitis and acute pyelonephritis."[1]

Leon Parris Fox in examining the causes of California maternal mortality found that septic shock was of major importance.

> ". . . . from August 1957 through December 1965, there were 223 deaths from abortion. This is 21% of the 1063 maternal deaths studied during this period out of a total of 1288 which were reported but not completed. Sepsis was the basic factor in 122 cases, 66 of these died in septic shock."[2]

Of these 66 cases of septic shock, twenty-seven of them grew cultures of a gram-negative organism, *Escherichia coli*.

Although the incidence of septic abortion with gram-negative shock is very low, it is important to be well aware of diagnosis, pathophysiology and treatment because of the high rates of mortality.

In addition, Lillehei, Longerbeam, and Rosenberg went so far as to say that, "Gram-negative septicemia is probably the most common cause of clinical irreversible shock in the hospital."[3]

It is the purpose of this paper to present a synthesis of the current ideas about gram-negative shock, particularly the treatment.

ETIOLOGY

Of the gram-negative organisms which are capable of producing shock, Escherichia coli species is the most frequent. It is estimated that this one species is the source of one-third of the reported cases. Also Proteus, Aerobacter aerogenes, Paracolon, and Pseudomonas produce the endotoxin which can result in shock, Proteus gave the highest mortality.[4]

The infection can come from several sources besides septic abortions, chorioamnionitis, and acute pyelonephritis. In one study it is found that the bacteria entered the circulation via the urinary tract 58.5 per cent of the time, via the biliary tract 16.9 per cent, and via the gastrointestinal tract 12.3 per cent. In the remaining ten per cent, the source of infection was not determined. "In about 40 per cent, the entry seemed to be associated with an operative procedure, usually surgical manipulation of the urinary or gastrointestinal tracts."[5]

As these bacteria multiply, it is thought that a lipiprotein-carbohydrate complex is released from the cell wall. This complex is the endotoxin that initiates the shock.

CLINICAL PICTURE

The classical description of the gram-negative shock is the following: "It is usually ushered in by a shaking chill with a moderate elevation of the temperature. The patients may, however, be com-

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*Partial requirement for completion of course by the Department of Obstetrics and Gynecology.

pletely afebrile or may not have a fever of alarming heights. Hypotension is acute and severe. A bluish pallor of the skin accompanied by prostration and confusion will be shortly followed by a quiet death in the usual sequence of events in this disease."[6]

A more close look at this process by researchers and physicians has divided this entity into two stages. A sudden, hard-shaking chill is the beginning of the first stage. Following this chill a fever which ranges between 101° and 104° F begins. In less than half of the patients, temperatures may go over 104° F. This elevated temperature occurs in elderly patients who rarely have high temperatures. After the fever spikes, a period of excessive sweating occurs. Within six to eighteen hours after the first appearance of fever, there is a drop in the systolic blood pressure to about 70 mm. Hg. At this point the warm, dry skin, full pulses, and sufficient urine production indicate a "warm" type of shock. The brain may be working normally with an alert facial expression and only an over-all feeling of discomfort. Confused states then begin to alternate with alert periods. Abnormal speech or activity may be the first unusual behavior noted.[7]

Several hours from the beginning of the shock, stage two begins with an increase in the hypotension. Often the pressure is so low that it is impossible to get a reading. The signs of "cold" shock begin to replace the "warm" type. "The skin of the extremites is cold, moist, pale, frequently mottled, and sometimes grayish-blue tinted. Peripheral cyanosis involves the digits, tip of the nose, and ear lobes."[8] At times patients may develop tachycardia which is an unreliable index to the status of physiological condition of the body. In addition older individuals tend to develop a very slow bradycardia in the last stages. As the heart sounds become faint, palpation of the peripheral pulses becomes difficult, if at all. When the peripheral veins collapse, the sound of a gallop rhythm can become audible. Rapid shallow breathing signals the appearance of difficulties within the pulmonary system without pulmonary congestion.

Although hypotension is present, effective urine output can persist although the flow usually decreases or halts. If the hypotension continues azotemia and acidosis may appear.

As a rule hyperthermia replaces hypothermia. Without a halt of the shock or positive response to the second stage, brain functions will then begin to deteriorate as in development of coma, convulsions, dilated and slow pupils, hyporeflexia, and Cheyne-Stokes respirations. However, in a number of cases these conditions fail to appear and death comes suddenly to a wide-awake man.[9]

DIFFERENTIAL DIAGNOSIS

Myocardial infarction may be suspected because of EKG changes and elevated serum transaminase while an increased serum amylase suggests pancreatitis. Acute adrenal failure, pulmonary embolism, peritonitis, airway obstruction, and cardiac or hypovolemic shock must be ruled out. It is important that the relationship between infection and shock be kept in mind; a prompt diagnosis is vital.[10]

Few diagnostic tools are available to make a prompt, accurate diagnosis. Cultures of blood are most helpful, but these take a number of hours. Doctors Donald B. Doty and Max Harry Weil suggested a simple procedure which may prove to be helpful. They found that, "During circulatory shock . . . a relative increase was demonstrated in the capillary hematocrit."[11] The samples were drawn simultaneously from the fingertip and the central venous catheter, or from an artery.

Doty and Weil suggested that, "Since the clinical signs may not be individually reliable indicators of circulatory failure, objective demonstration of decreased effective blood flow and tissue perfusion would be most helpful in diagnosis.[12]

It is hoped that reliable indicators will be developed in the near future.

PATHOPHYSIOLOGY

There are several theories about the pathology of gram-negative endotoxin shock. One theory of this syndrome will be presented.

Because the mechanics of the phenomenon of gram-negative shock are not well understood, it is possible to relate only theories which have been developed by researchers and much disagreement prevails in regard to this syndrome's physiology.

The release of this biochemical moiety from the cell wall of the gram-negative bacteria into the circulation signals the beginning of that which can become "endotoxin shock." The body defense system, the reticuloendothelial system (R. E. S.) begins to inactivate the endotoxin. Evidently this is the only defensive alignment which must be overcome by the endotoxin before initiating havoc to the body.[13]

As the endotoxin flows through the body quan-

tities of histamine are released with the splanchnic construction following. Paralleling the increase in histamine and portal venous construction is a drop in serum complement. Consequently, the blood pressure drops due to the stopping of blood flow in the portal system. After a period of ten to twenty minutes (in drop) the blood pressure is back towards normal again with a decrease in histamine concentration. During the following sixty to ninety minutes, there is a slow but definite decline in blood pressure with no hope of recovery without treatment.[14]

Another aspect is the hypercoagulability which is followed by hypocoagulability in this type of septic shock. Vasoconstriction of arterioles is mediated via the sympathetic and adrenomedullary systems accompanied by possible arterial hypotension. As a result the arteriovenous shunts and capillaries open at the same time. It is thought that the capillaries respond to the production of histamine from local mast cells responding to anoxia. The microcirculation of the capillaries usually has within it a large quantity of blood. Because the capillaries have opened the volume of the vascular tree has greatly increased, but the blood volume has not. Now the capillary flow is quite slow. Since the flow is so slow, there is an abnormal accumulation of lactic acid in the capillaries which leads to capillary and venous acidosis. This slow flowing blood is now hypercoagulable.[15]

The platelet count has dropped from 300,000 to near 50,000 within about five minutes with the plasminogen and fibrinogen levels exhaused.[16] Thrombloplastic materials and catecholamines are listed as aiding the formation of this hypercoagulable state.

In this hypercoagulable condition with the slow capillary flow, acidosis and other factors, microemboli can begin to form. When the emboli are formed, perfusion of the clotted microcirculation becomes impossible. Microinfarction results unless the clots are removed or dissolved. This state can lead to death if the liver or kidney are infarcted.[17]

Also, constricting pulmonary vessels are lead to spasm by the endotoxin. Possible respiratory abnormalities and cor pulmonale may follow pulmonary arterial hypertension and perfusion of underventilated alveoli.[18]

The above mentioned factors lead to a physiological state with these characteristics: " (1) it does not respond to mere volume replacement; (2) oliguria or anuria; (3) profound hypotension; (4) poor capillary refilling; and (5) intense vasoconstriction."[19]

MEDICAL MANAGEMENT

INTRODUCTION

Medical management is varied and confusing. Many different regimens are offered in the literature and there is very little agreement beyond the need to give antibiotics. This situation requires that the clinician seek out what is more reasonable. Richard C. Lillehei and others wrote these words concerning treatment:

> "It is only recently that the importance of bacteria in the genesis of irreversible shock has been appreciated. In fact, it is the gram-negative bacteria and their endotoxins within the cell wall that are probably a cause of many instances of irreversible shock in man. While gram-negative septicemia as a cause of shock was first described over half a century ago, it is discouraging to realize that we have made little progress in its treatment since that time. This is underscored by the fact that the mortality rate of patients with gram-negative septicemia complicated by shock is still over 50%, no essential improvement over the preantibiotic days of Lister and Pasteur and in the face of all that is new in medicine since that area."[20]

An attempt will now be made to present a treatment program gleaned from the more successful regimens with explanation for their use.

PRELIMINARY PREPARATION

When the clinical picture of gram-negative shock arises, blood should be drawn for pH, hemoglobin, hematocrit, electrolyte determinations, and cultures. The central venous pressure is monitored via the external jugular or femoral vein in an effort to obtain information on venous return and/or blood volume. If possible, blood volume determinations may be completed. The electrocardiogram equipment is set up, the bladder is catheterized. After these preliminary procedures, antibiotics, surgery, vasopressors, vasodilators, fluids, and steroids, may be employed.

ANTIBIOTICS

It is essential that the proper antibiotic (s) be administered quickly to stop the multiplication of the microorganisms. Kanamycin should be administered when the microbe is not known.[21] When the bacteria and sensitivities are found, it is imperative that the proper antibiotic be given because: "When antibiotics were administered

'correctly', on the basis of antibiotic sensitivity tests, survival was significantly improved."[22]

Penicillin may be of very little use because the gram-negative bacteria are usually resistant to it; however, this drug is often given in large doses.

SURGICAL TREATMENT

At Parkland Hospital in Dallas, it was found that, "Surgical therapy, specifically incision and drainage of abcesses or debridement of infected foci; appeared to be a major determination in prognosis."[23] In the case of a septic abortion, curettage should be accomplished early; some patients will require a hysterectomy if the myometrium is extensively involved.[24] Surgery and antibiotics will do a great deal to get to the source of the infection; of course, not all infections are operable.

FLUID REPLACEMENT

The central venous pressure (CVP) and blood volume determinations usually show a decreased blood volume. With constant monitoring of the central venous pressure, heart function and blood volume can be followed. Jay N. Cohn says that: "It has now been clearly established that the vast majority of patients with shock, oliguria, or peripheral circulatory failure responds well to aggressive blood volume expansion even when there is no demonstrable site for blood or plasma loss."[25] Expansion of blood volume by a rapid infusion of 500 ml of low molecular weight dextran, plasma, or whole blood over a period of 15 to 20 minutes will be helpful in correcting hypovolemia, and fluid replacement gives additional information concerning the nature of the shock. Low cardiac output to functional hypovolemia can be distinguished from myocardial failure. "A response to volume expansion characterized by a small increase in CVP and a striking improvement in peripheral blood flow suggests that the myocardium is operating on the sharp ascending limb of its Frank-Starling curve. An abnormal rise in CVP (an increase of 3cm H_2O or more with each additional 100-ml infusion) indicates that the plateau of the function curve at that particular time has been reached."[26]

In regard to the fluid that is used, whole blood is thought to be best with plasma or dextran as second choices. O'Neill and Foster, however, have noted better results with low molecular weight dextran.[27] In his book, *Syndromes of Disseminated Intravascular Shock,* Robert M. Hardaway stated that, "Some fluids, notably low molecular weight dextran and mannitol, will not only bring in their own external volume replacement but greatly assist the endogenous replacement by drawing in additional volume from the extracellular space."[28] The low molecular weight dextrans are used because those of higher weight cause a sharp decrease in fibrinogen levels, thus prolonged bleeding results.[29]

VASOPRESSORS VERSUS VASODILATORS

The real argument comes in use of vasopressors, vasodilators, both or none at all. In the past vasopressors were almost always used. Some are very much opposed to vasopressors: "Yet more recently we have turned away from the physiologic concepts and have based treatment of shock in man on an empirical rather than an experimental basis, on testimonies rather than evidence. This paradox is perhaps best illustrated by the present widespread, even promiscuous, use of vasopressor agents to treat the hypotension of shock."[30]

Morris, Smith, and Assali in writing about the vasopressor versus vasodilator controversy stated: "In the human, assessment of the hemodynamic alterations of endotoxin shock has been difficult. Most of the studies have been limited to measurement of arterial pressure, cardiac output, renal function, and systemic resistance. Valuable as they may be, they provide little information as to the status of regional circulation which is usually inferred from studies on the experimental animal. This extrapolation from animal to the human is probably responsible for the current dilemma of vasoconstrictor versus vasodilator therapy in the treatment of endotoxin shock."[31] These same researchers concluded from their experiments that vasopressor agents are the drugs of choice in management of endotoxin shock as have others. But, there exist a number of physicians who stand behind the use of vasodilators.[32]

Why should vasopressors not be used in the treatment of gram-negative shock? "Intravenous infusions of levarterenol or other sympathomimetics have been widely used in the treatment of shock associated with trauma, hemorrhage, septicemia, or myocardial infarction. This treatment is directed toward raising the blood pressure on the assumption that this will improve the nutrition of vital organs. This rationale, however, is questionable. Shock of other than cardiogenic etiology is usually characterized by a relative deficiency in circulating blood volume, and compensatory mechanisms will have already initiated intense peripheral vasoconstriction. Renal and

splanchnic are already reduced, and further vasoconstriction in these regions by the action of a sympathomimetic can seriously impair the blood supply to the kidney, liver, and other vital organs. In addition, it is probably of importance that sympathomimetic vasoconstriction can itself reduce circulating blood volume. Successful results in treating shock with levarterenol or other vasopressor agents are the subject of many reports; however, assessment of such results is notoriously difficult, and it is seldom clear whether survival was due to or in spite of this treatment."[33]

Two drugs, isoproterenol and phenoxybenzamine, are the two drugs most often used as vasodilators. Each has a different mechanism. As there exists some evidence for myocardial failure, [34, 35] isoproterenol's actions are most suitable because of its ability to lower peripheral vascular resistance, especially in skeletal, but also renal and mesenteric beds; but also, isoproterenol increases the cardiac output by ionotropic and chronotropic properties; the venous return to the heart is enhanced. Other actions include maintenance or elevation of systolic pressure, and relief of bronchial constriction.[36] Some clinicians hesitate to use Isoproterenol because of cardiac arrhythmias which have been reported; however, these arrhythmias occur only with large doses. In order to protect such from occurring, the patient may be digitalized with an electrocardiogram monitor. If the shock and low cardiac output remain after the CVP reaches 8 to 15 cm H_2O, the drug may then be given (4 mg/L, about 10 mg/min).[37] Isoproterenol should not be given before transfusion.

Gary G. Kardas obtained favorable results with antibiotics, glucocorticoids, expansion of blood volume, vasopressors, and replacement of vasopressor with vasodilator (isoproterenol).[38] Many variations of the use of "vaso" agents can be found; one must determine his own particular choice and use it remembering that each patient is an individual who may respond in a manner different from the norm.

CORTICOSTERIODS

Corticosteroids is another subject of dispute. There are physicians who will not use them at all while other doctors give corticosteroids much praise in shock treatment. The following remarks show what some researchers have found: ". . . hydrocortisone is an effective drug to use alone in the early period after endotoxin shock, although results are improved if it is combined with fluid therapy. . . . another observation of interest to the clinician is that the giving of hydrocortisone alone according to one group, in doses up to 50 mg per kilogram in the face of hypotension will not cause any further hypotension, indeed, the blood pressure rises almost immediately after its administration. The effects of this dosage of steriod appears to be a gradual reduction in individual organ and total peripheral resistance with more normal flow to bowel and other visceral organs. Plasma volume losses are curtailed, catecholamines decrease, venous return and cardiac output increases and urine flow is restored."[39] Similar results were not found elsewhere. Suppressions of systemic reaction to endotoxin has been given as a reason to give steriods.[40]

MISCELLANEOUS

Correction of acidosis by sodium bicarbonate and hypothermia to near normal temperature have also been suggested.[41]

Nick and Dodd reported some most significant data in *Annals of Surgery* this past September. They investigated the possibility that immunochemical responses can disrupt the cellular coding mechanism of DNA. The sera of 55 patients was analyzed and antibodies of DNA were sought. "Antibodies to DNA and its chemical subunits, or nuclestides, were found in the serum of patients in shock using hemagglutination tests. DNA controls the process by which amino acids are aligned in proper sequence during protein synthesis. The integrity of this molecule as well as its messenger RNA are essential for continued cellular function.

Antibody was present in 40 patients with moderate and severe shock, but was absent in 15 patients with mild or transient shock. No relationship exists between the presence of antibody and the etiology of shock.

Nucleotide specificity tests offered prognostic help in patients with severe and protracted shock. Patients with specificities directed to cytosine and guanine tended to have a favorable outcome. Two-thirds of the patients with thymine-specific antibodies died (in 11 of 13 deaths); one-third who had low titers survived. The possibility that DNA antibodies can prevent the formation of messenger RNA or otherwise block the mechanisms for protein synthesis suggests another approach to therapy."[42]

PROGNOSIS

The fatality rate in endotoxin shock with treatment is 40 to 80 per cent.[43] The average time of

survival following the syndrome's beginning is two days. The type of organisms, the sensitivity of the organisms to antibiotics, the physical condition of the patient, and the bacterial entry site are the main factors in determining the prognosis.

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"Renal Trauma"

Jack E. Mobley, M.D.*

The genitourinary system has not escaped from the ever increasing number of accidents of all types. In this and subsequent articles, an attempt will be made to review the diagnosis and management of injuries of the various components of this system.

The kidney in its position in the posterior abdomen, guarded to a certain extent by the rib cage and paraspinal muscles and floating in a cushion of fat, is not as frequently injured as are other of the abdominal organs. The adult organ is less prone to injury than that of the child, in whom the perinephric fat is less well developed and in whom the kidney projects more intraperitoneally. Despite this fact, statistics show that most renal injuries occur in the young adult male, probably because he is more often exposed to the type of accident which may produce kidney injury (automobiles, construction work, football, etc.).

Renal injuries are classified as blunt and penetrating. Since there is no direct wounding of the kidney in blunt trauma, all of the damage is done by transmitted force; and the extent of the injury is directly related to the magnitude and direction of the force. The injury may be a simple contusion, a laceration of the parenchyma only, a laceration of parenchyma and collecting system, a partial laceration of the hilar structures, or a complete laceration or avulsion of the renal vessels.

Most patients with significant renal trauma have hematuria, which is usually gross and total but occasionally only miscroscopic. The hematuria is most often painless, but the passage of clots can produce renal colic. A carefully taken history of the injury will often point to possible renal damage and may well indicate the side of involvement. Physical examination may be helpful if areas of laceration, contusion, or tenderness are present. Occasionally, a flank mass is found and directs attention to the kidney. X-ray examination of the bones and soft tissues will sometimes give valuable clues as to the site of injury. The presence of a soft tissue mass, obliteration of a psoas muscle shadow, fracture of a rib or vertebral transverse process are all indicative of trauma at least near the kidney if not involving it.

Probably, every patient suspected of having an injured kidney should have an intravenous pyelogram in order to establish the extent of the injury. In the instance of contusion or minor laceration, there may be no abnormality of the pyelogram. Larger lacerations may be apparent as defects in the outline of the kidney, or extravasation of contrast media may indicate involvement of the collecting system. The severely damaged kidney may excrete no contrast, or there may be massive extravasation of the contrast. Rarely, nonfunction can occur with a simple contusion; but subsequent studies will indicate returning function. Films taken at thirty or sixty seconds following injection of the contrast media will provide a better study of the kidney outlines because the contrast is present in the parenchyma. Parenchymal lacerations may be more easily seen in this "nephrogram phase". In the past retrograde pyelography has been used rather extensively in the evaluation of renal trauma, and there are those who still advocate its frequent use. However, in most instances the necessary information for diagnosis can be obtained without resort to retrograde studies; and they are not recommended for a routine approach to renal trauma because of the danger of introducing infection. In those patients in whom injury to the larger renal vessels is suspected, or

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in whom there is no excretion of contrast media on the injured side, the use of aortography may provide a definite diagnosis. This will allow early diagnosis and treatment of extensive vascular injuries, possibly preserving kidneys which might otherwise be lost.

Blunt renal trauma is best treated conservatively. Eighty-five percent of patients with such injuries will recover without surgery. The patient should be hospitalized and closely monitored. Indications for surgical intervention are signs of continued bleeding despite adequate blood replacement and increase in size of a flank or abdominal mass. In instances where there is massive renal laceration or where major extrarenal vascular injury is present, surgery should be undertaken early. It is important to remember that secondary renal hemorrhage can occur and is often massive. This generally occurs in the period from seven to fourteen days following trauma. Consequently, it is important to keep the patient with renal trauma under close surveillance for a full two weeks. Further follow-up is also necessary because a small percentage of patients with renal trauma will develop arterial hypertension in later life. In those patients requiring surgery it may be necessary to perform simple suturing, debridement, partial nephrectomy, vascular repairs, or nephrectomy. The anterior transabdominal approach is very useful in approaching the traumatized kidney because it allows early access to the major renal vessels before the tamponading effect of Gerota's fascia is lost by incision.

Because of the possibility of injury to intraperitoneal structures, surgical exploration is usually necessary in patients with penetrating wounds of the kidney. This is especially true when the injury is caused by a projectile, such as a bullet, in which concomitant injury may be present at some distance from the kidney. Sometimes, the conservative approach is permissible in wounds produced by localized penetrating injury, but only if the examiner is absolutely convinced that the injury is limited to the renal area and that there is no severe bleeding. Antibacterials should be used in patients with penetrating renal injuries because of the likelihood of bacteria having been introduced at the time of the injury. The surgical procedures employed in the treatment of these injuries are the same as those used in blunt trauma. The surgical approach will generally be transperitoneal because of the necessity of examining the intraperitoneal structures.

Although most patients with renal injuries will recover with conservative therapy, the early recognition of these injuries provides the best opportunity for an improvement in the salvage of kidney tissue. A plea is made for a prompt, thorough work-up of those patients suspected of having renal trauma in order to recognize those injuries which should be treated by surgery early in their course.

Epidemiological Relationship of Clinical Nasal Allergy to Eosinophils and to Goblet Cells in Nasal Smear

A. B. Murray (601-750 W Broadway, Vancouver, British Columbia) and D. O. Anderson

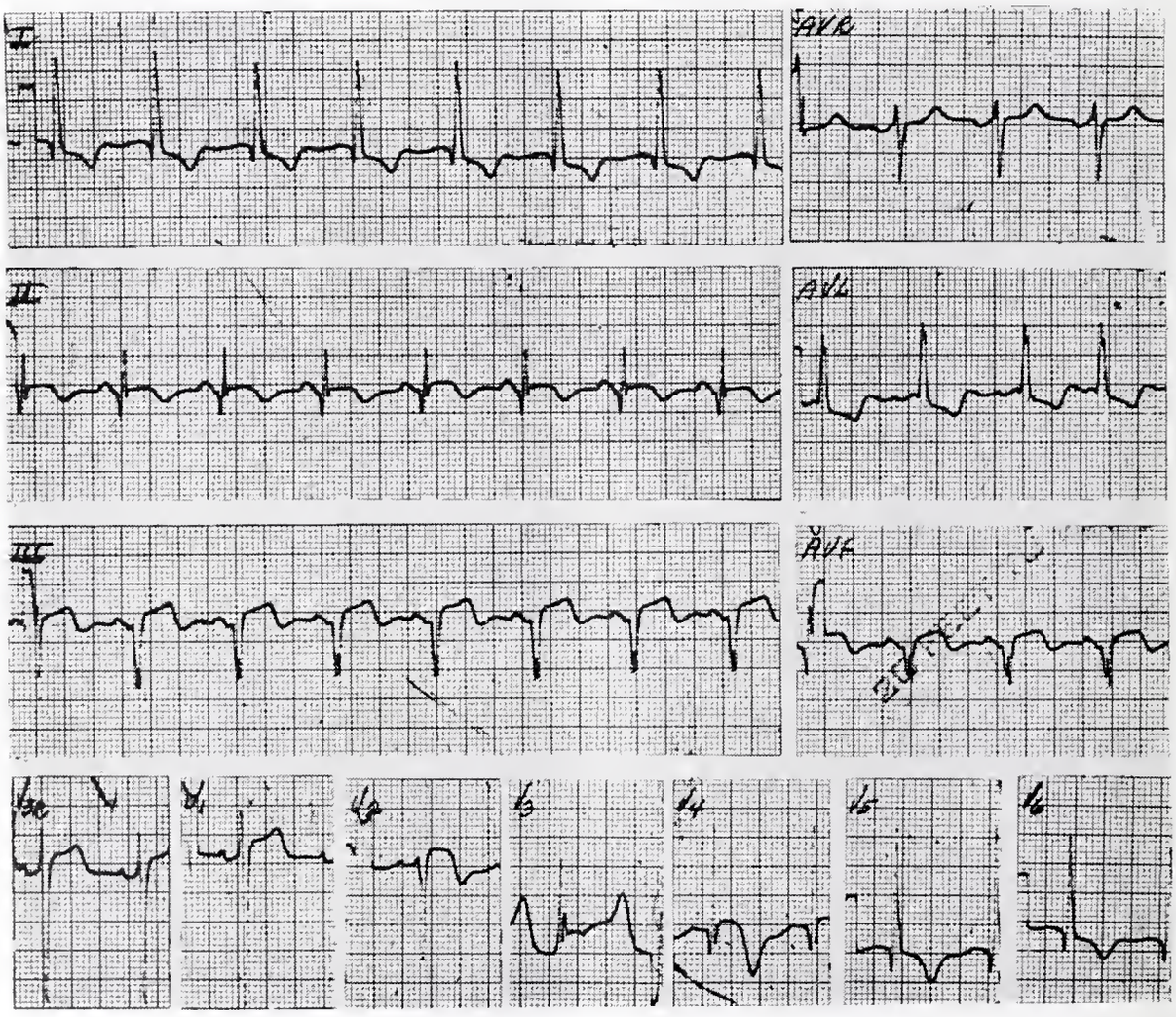
J Allerg 43:1-8 (Jan) 1969

Of 354 Vancouver primary school children, one-half had hearing loss, and one-half were control subjects with normal hearing. A trained nonmedical interviewer presented a precoded questionnaire of allergy symptoms to their mothers, and a pediatric allergist examined the children's noses for signs of allergy. Two nasal smears were made from each and were numbered consecutively. One was stained by Hansel's, and the other by Papanicolaou's method. A technician scored the former positively if there were ten eosinophils per high-power field in any two high-power fields and the latter positively if six goblet cells were found in the entire slide. There was a highly significant association between clinical evidence of nasal allergy and a nasal secretion eosinophilia. No significant association could be found between clinical evidence of nasal allergy and goblet cells or between eosinophils and goblet cells. The presence of goblet cells does not appear to help in making the diagnosis of nasal allergy in children.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 74 SEX: Female BUILD: Stocky BLOOD PRESSURE: 210/140
CARDIAC DIAGNOSIS: Myocardial infarction?
OTHER DIAGNOSES: None
MEDICATION: None
HISTORY: Sudden onset chest pain with nausea, vomiting.

See Answer on page 454

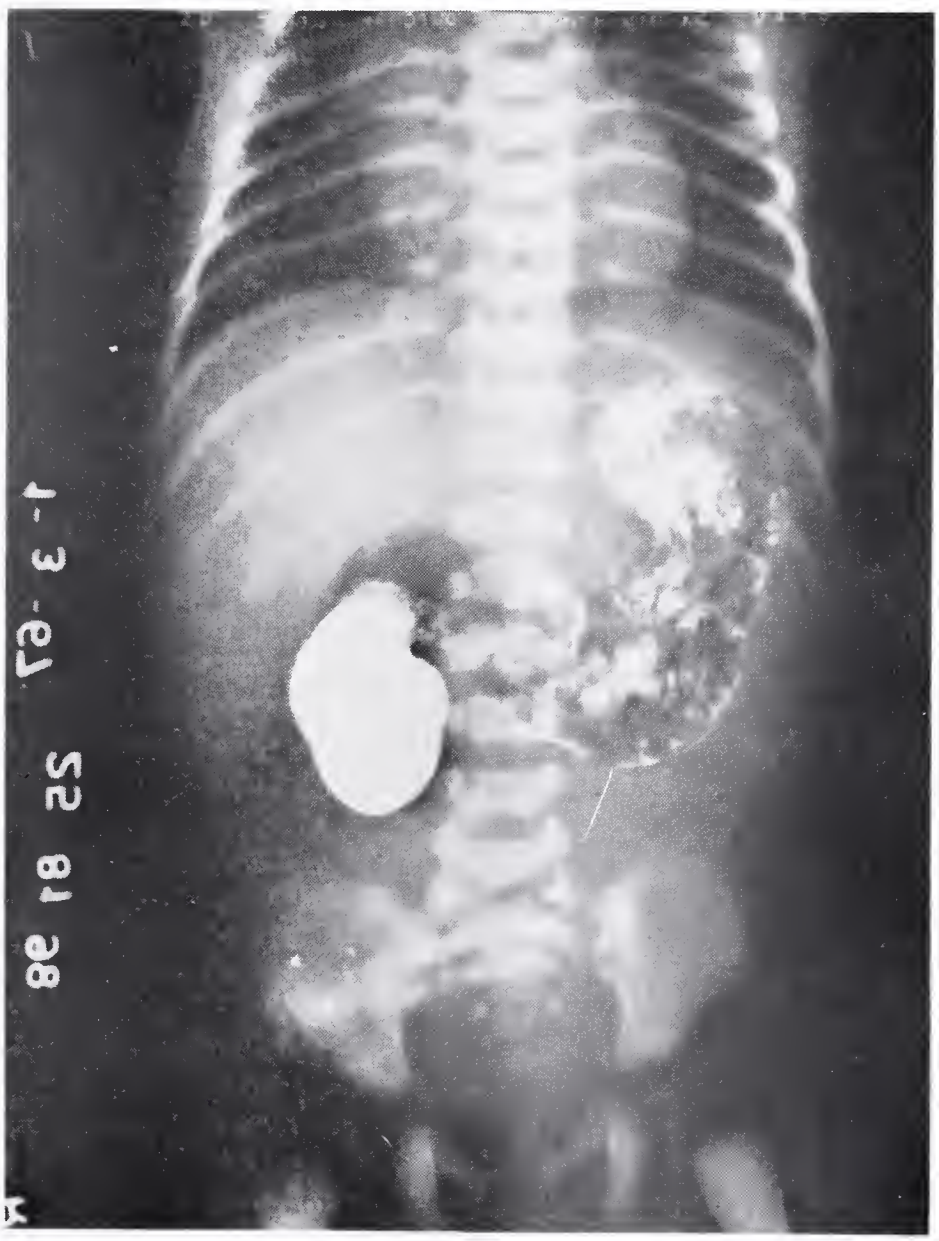


The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

See Answer on page 454



HISTORY: 2 day old infant with persistent vomiting.

PUBLIC HEALTH AT A GLANCE

Arkansas Drug Laws and Regulations

The Division of Food and Drug Control consists of a Director, an Assistant Director, three Sanitarians and a Secretary. The Division is charged with the enforcement of the following drug laws or regulations: Uniform Narcotic Drug Act, Rules and Regulations pertaining to Narcotic Drugs, Arkansas Drug Abuse Control Act, Act 64 of 1965—Voluntary Commitment Act, The Hallucinogenic Drug Act and the Arkansas Food, Drug and Cosmetic Act. From time to time the legislative bodies of the State upgrade these laws or the Arkansas State Board of Health upgrade the rules and regulations. This article is being written to convey these changes to the physicians of the State.

Uniform Narcotic Drug Act

The Uniform Narcotic Drug Act was amended by Act 409 of 1965 which had an effective date of March 20, 1965. The major changes were as follows:

1. The word "purchase" was added to Section 2 *Acts Prohibited*. This makes it possible for a person to be charged with violating the Act if he purchases narcotics except as authorized by this Act.

Section 6 paragraph 3 states an apothecary may sell narcotics to physicians only upon a written order form. If a physician purchases a narcotic drug from an apothecary on a prescription he is violating the law as is the parmacist who fills the prescription.

2. Under Section 8 *Preparations Exempted* the Uniform Narcotic Act was amended making preparations containing one-sixth grain of dihydrocodeinone or any of its salts no longer exempt.

Section 9 *Records to be Kept* was amended making it necessary for physicians, dentists, veterinarians and other authorized persons to keep an up-to-date record of all narcotic drugs administered, dispensed or profesionally used by him otherwise than by prescription. The notation in a patient's records does not satisfy this section.

Arkansas Drug Abuse Control Act

The Drug Abuse Act was enacted by the State Legislators in 1967. The Barbiturate and Amphetamine Act (Act 184 of 1951) was repealed. The Drug Abuse Act makes it possible for physicians to call in prescriptions for barbiturates and amphetamines to apothecaries and they need not be signed.

A prescription for drug abuse drugs may be filled up to 5 times within a six months period if such a refill is indicated on the prescription.

Unless a physician regularly engages in dispensing abuse drugs he is not required to keep records on drugs dispensed.

Act 64 of 1965 — Voluntary Commitment Act

The Act provides for any person who believes himself addicted to narcotic drugs to be committed voluntarily in a public institution for rehabilitative care and treatment.

It also provides for the commitment of persons addicted to narcotic drugs upon petition to the County Court by the Prosecuting Attorney.

Act 111 of 1967 — The Hallucinogenic Drug Act

This Act makes it unlawful for any person except a licensed manufacturer, licensed pharmacy, licensed physician or licensed psychologist to use, possess or to have in his possession, sell, exchange, give away, barter or offer to give another any hallucinogenic drug.

The physician who receives or administers any hallucinogenic drug must keep a record showing the date, amount and source of drugs received, the date of administration, the name and address of the person to whom administered and the kind and quantity of drugs. The record must be kept for three years and shall be open for inspection by any peace officer, health officer or by any equivalent Federal Officer.

Act 415 of 1953—The Arkansas Food, Drug and

Cosmetic Act

No changes have been made in this Act. The Act defines when a drug or device may be deemed to be adulterated or mislabeled.

The following items are violations of the narcotic laws of the State and are some of the most frequent reasons physicians have appeared before the Medical Board:

1. The administering, dispensing or prescribing of narcotic drugs for a person addicted to a narcotic drug except for the purpose of gradual withdrawal or for medicinal purposes.
2. The writing of narcotic prescriptions for one's spouse.
3. Self-administration of narcotics and becoming addicted.

Narcotic drugs may be sent by registered mail to the Arkansas State Department of Health for destruction. Write to the Division of Food and Drug Control, Arkansas State Department of Health, 4518 West Markham, Little Rock, Arkansas for Form FDC-17—Registrant's Inventory of Surrendered Drugs. This is a very simple method for physicians to rid themselves of unwanted drugs.

RESOLUTIONS

WHEREAS, the passing from this life of Grady W. Reagan, M.D., an honored member of this Society is noted with sincere sorrow, and;

WHEREAS, Dr. Reagan held the highest office this Society can bestow upon a member, that of the Presidency, and;

WHEREAS, his contributions to the health and well being of this community were not limited to his unselfish service to this organization, but were invaluable to other organizations and individuals as well; and

WHEREAS, this Society wishes to express its sincere sympathy to Dr. Reagan's family;

BE IT THEREFORE RESOLVED:

THAT, this resolution be made a part of the permanent records of this Society; and

THAT, a copy of this resolution be forwarded to Dr. Reagan's family; and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Henry Hollenberg, M.D.
Robert Watson, M.D.

Approved by Executive Committee
February 19, 1969

WHEREAS, the members of this Society wish to express their sincere sense of loss in the death of their colleague, J. Donald Hayes, M.D., and

WHEREAS, Dr. Hayes had been a member of this Society for thirty-seven years and was esteemed by his fellow physicians as well as by the community in which he served; and

WHEREAS, this Society conveys its heartfelt sympathy to Dr. Hayes' family;

BE IT THEREFORE RESOLVED:

THAT, this resolution be made a part of the permanent records of this Society; and

THAT, a copy of this resolution be forwarded to Dr. Hayes' family; and

THAT, a copy of this resolution be forwarded to the Journal of the Arkansas Medical Society for publication.

By Action of the Memorials Committee
T. Duel Brown, M.D., Chairman
Henry Hollenberg, M.D.
Robert Watson, M.D.

Read to and approved by
The Executive Committee
February 19, 1969

EDITORIAL

Uninary Infections

By Alfred Kahn, Jr., M.D.

Urinary tract infections continue to be a major problem of the medical profession. Complete eradication of some urinary infections is virtually impossible; this may be the result of a resistant strain of bacteria, a mechanical defect in the function of the urinary tract, a defect in the body's defense mechanism, and so on. Because of the multiplicity of causes of urinary infections and because of the harmful consequences as the atrophic kidney of pyelonephritis, hypertension, uremia, etc., research on urinary tract disease is going on in various disciplines: chemical, bacteriological, mechanical, and physiological.

A paper by V. T. Andriole of Yale University Medical School (Journal of Laboratory and Clinical Medicine, Vol. 72, p. 1, July 1968) has brought forth a rational basis for pushing fluids in urinary tract infections. As Andriole points out, the renal medulla seems to be more vulnerable than the renal cortex to bacterial infection. Since the fluid milieu of the medulla is hypertonic, it was felt that the hypertonicity might be a factor in the susceptibility to urinary infections. The author used a model experiment described by Guze et. al. to produce chronic pyelonephritis in rates; this consisted of injection of streptococcal faecalis intravenously without any mechanical manipulation. Andriole sacrificed the animal after injection at 2, 6, 12 hours and 1, 2, 7, 14, 21, 28 and 25 days. A water diuresis was initiated in one group of rats and another group were not diuresed; streptococci (enterococci) were then injected in both groups. The most significant statistic was that five weeks after inoculation 20 of 21 control animals had pyelonephritis, where only 6 of 26 animals on water diuresis had pyelonephritis. One experiment was designed to determine if pyelonephritis could be cured by initiating diuresis after pyelonephritis was started; control animals which were not diuresed all had pyelonephritis. Pyelonephritic animals diuresed for one week showed six recoveries in 18; if the period of diuresis was 14 days, only 6 rats of 16 had pyelonephritis. Intermittent diuresis for 16 hours out of the day also had a beneficial effect in decreasing pyelonephritis. The author offered several explanations for the beneficial effect of diuresis on pyelonephritis. The basic tenet was that this decreased medullary hypertonicity; he cited that in the diuresed animal leukocytes moved into the medulla to kill bacteria in 24 hours, whereas in the non-diuresed animal, leukocytic inflitration occurred only after 48 hours; leukocytes in hypertonic solution also did not seem to phagocytize bacteria well; lastly, diuresis promoted renal blood flow, and this brought in antibodies, complement, and other bacteria fighting substances.

The bladder has been implicated as a cause of serious urinary tract infections, especially in such conditions as the vesico-ureteral reflux in which infected urine from the bladder retrogradely infects the kidneys.

The bladder has antibacterial mechanisms and this has been reported on by Norden, Green and Kass at The Boston City Hospital (Journal of Clinical Investigation, vol. 47, p. 2689, Dec. 1968). As they point out, the principal mechanism, whereby the bladder rids itself of bacteria is by voiding, some bacteria remain after micturition. The authors investigated the antibacteria activity of the bladder by inoculating female guinea pigs intravesically with radio-active phosphorous tagged E. Coli, P. mirabilis, and S.

aureus; they also used female rats. The bladders were removed after the animal had been permitted to void and the bacteria studied by radioactive counting. They found that 99.9% of the inoculated bacteria were removed by voiding. Of the 0.9% remaining bacteria, the authors found that the longer the bacteria remained in contact with the bladder, the more that were killed or rendered non-viable. It was interesting that while the multiplication of E. Coli in bladder urine was greater than Staph. Aureus, the bladder mucosa had a greater antibacterial against E. Coli. Tests on rat bladder's antibacterial activity was similar to the guinea pigs. Bladder tissue has homogenized and tested to see if it had antibacterial activity; it had no antibacterial effect. Excised bladders demonstrated an ability to reduce bacteria attached to the bladder wall but this effect was not progressive temporally. The authors immunized guinea pigs against P. mirabilis and then tested to see if this enhanced the bladders antibacterial effect, and the increase in antibacterial effect was not statistically notable. In general, the studies of Norden demonstrate an intrinsic antibacterial effect in the bladder wall; the rapid reduction in bacteria viability does not seem to depend on an inflammatory reaction and phagocytosis; furthermore, antibodies do not seem to be a significant cause of the rapid death of bacteria on the bladder wall. The authors conclude the bladder wall must create an antibacterial substance but its character is unknown.

Rifampin and Ethambutol in the Retreatment of Advanced Pulmonary Tuberculosis

A. Gyselen et al (Academy Ziekenhuis, Pellenberg, Univ Leuven, Louvain, Belgium)
Amer Rev Resp Dis 98:933-943 (Dec) 1968

The effect of ethambutol and rifampin is compared in 52 patients with advanced pulmonary tuberculosis, already treated for several years with the first and second line drugs. In 21 patients only one active drug was included in the trial regimen: ethambutol in 14 and rifampin in 7, who previously had been treated unsuccessfully in ethambutol. In nine of the ethambutol-treated patients, sputum conversion was obtained, but four patients had bacteriological relapse. All seven rifampin-treated patients became noninfectious, but two showed relapse. In 31 patients two active drugs were included in the trial regimen: ethambutol and a second line drug (viomycin, capreomycin, ethionamide, or thiocarlide) in 19 patients; ethambutol and rifampin in 12. In the first group sputum conversion was obtained in 15 of 19 patients but was followed by four bacteriological relapses, in the second, sputum conversion in 11 of 12 patients had only one relapse. Neither ethambutol nor rifampin provoked any toxicity symptoms and the tolerance was excellent in all patients. The results in these nearly hopeless cases show that ethambutol and rifampin are most active antituberculous drugs.

Proteinuria in Malignant Hypertension

V. K. G. Pillay, F. D. Schwartz, and R. M. Kark (Univ of Illinois College of Medicine, Chicago)
Lancet 2:1263-1264 (Dec. 14) 1968

All 28 patients with malignant hypertension had proteinuria at some time during the course of their disease; its degree varied widely. Severe, persistent hypertension with progressive deterioration in renal function is commonly associated with massive proteinuria. Control of blood pressure is associated with a decrease of proteinuria. In two patients the nephrotic syndrome developed; its rarity in malignant hypertension may be due to daily fluctuation and absence of persistent massive proteinuria.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D.C.—A Federal Communications Commission proposal to ban cigarette advertising on radio and television put the issue squarely before Congress again.

In 1965, Congress outlawed any federal or state controls on cigarette ads as a provision of the legislation that made mandatory that cigarette packages carry the warning: "Caution: Cigarette Smoking May be Hazardous to Your Health." Proponents of the electronic advertising ban contend that the package warning doesn't make enough impact.

Even before the FCC announcement, some members of Congress were saying that the provision outlawing federal and state controls over cigarette advertising should be allowed to expire on June 3. However, congressional reaction to the FCC ruling was mixed.

The American Medical Association House of Delegates, at its meeting in Miami Beach last December, declined to approve a resolution condemning cigarette advertising on TV. Instead, it adopted a resolution urging that AMA members "play a major role against cigarette smoking by personal example and by advice regarding the health hazards of smoking." The adopted resolution also made it Association policy that the AMA "discourage smoking by means of public pronouncements and educational programs" and "take a strong stand against smoking by every means at its command."

Anticipating censorship charges—which came promptly from the tobacco and broadcasting industries, and some members of Congress, the FCC said in announcing its proposal:

"We believe that in the case of such a threat to public health, the authority to act is really a duty to act. We stress again that our action is limited to the unique situation and product; that we are unaware of any other product commercials calling for such action, and expressly disclaim any intention to so proceed against other product commercials."

A nationwide increase in deaths from penumonia was attributable to the Hong Kong flu epidemic, the federal government reported.

"Pneumonia-influenza deaths increased over what was expected normally over the time the flu epidemic was active," Public Health Service Surgeon General Dr. William H. Stewart said, adding the deaths included all kinds of pneumonia and that the increase was "almost universal across the country."

The National Communicable Disease Center in Atlanta said penumonia-influenza deaths are one measurement of the severity of a flu epidemic. Reports from 122 cities during the eight weeks ended February 1 show 5,270 more pneumonia-influenza deaths than the number normally predictable during that period. The epidemic then was "on a downtrend," according to the CDC.

* * * * *

Robert H. Finch, the new secretary of Health, Education and Welfare, is giving health care costs a high priority in tackling the department's problems.

Even before he was sworn in as secretary, Finch made an unannounced call on chairman Wilbur D. Mills (D., Ark) of the House Ways and Means Committee, which has jurisdiction over HEW's medicare and medicaid programs. Finch afterwards said his staff would confer with Mills' staff to consider legislation or regulations that could combat higher health care costs.

"His staff and my people are going into this to see what we can do about the skyrocketing costs—especially hospitalization where 70 per cent of the costs are labor," Finch said.

The former California lieutenant governor said he was thinking about the pilot program in his native state—which he called a para-medical program—whereby long stays in the hospitals are shortened by putting people in intensive care centers. If hospital stays could be shortened, he said, "massive savings would result."

Mills was reported as favoring broadened med-

icare benefits or hospital care to cover disabled workers, who, by nature of their disabilities, receive Social Security payments—but because they are under 65—are ineligible for medicare. He also was reported to be concerned over increases in hospital charges and doctors' fees.

Several members of Congress have expressed concern over increases in the federal costs of medicare and medicaid. The Johnson Administration's budget for fiscal 1970, starting next July 1, allots $6.9 billion, up $636 million, for medicare and $3 billion, up $600 million, for medicaid.

A bill, introduced by Sen. George Aiken (R., Vt.), with Senate Majority leader Mike Mansfield (D., Mont.) and Sen. Winston Prouty (R., Vt.), as co-authors, would do away with the present "usual and customary charge concept," place all physicians on assignment, and reimburse them through the average payment for the same service provided by the local Blue Shield. Deductibles and co-insurance would be eliminated, among many other changes.

The Labor Department reported that medical costs, including both hospitalization and physicians' fees, rose 7.3 per cent for the calendar year 1968.

Finch said the Nixon Administration's HEW budget requests would be about the same size as the $17.5 billion submitted by the Johnson administration, but that there would be changes within the overall total. Estimated total federal spending in the health field will rise to $18.3 billion.

HEW said that national spending for health care, both government and private, continued to rise in fiscal 1968. The total for 1968 was $53.1 billion, $33.7 billion private and $19.4 billion government. This compared with $47.9 billion ($32.2 billion private and $15.7 government) for fiscal 1967. In fiscal 1960, it was $26.4 billion—$20 billion private and $6.4 billion government.

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The Defense Department will call up 437 physicians, 23 osteopaths and 25 optometrists in 1969 in the lowest doctors draft in seven years. The total of 485 medical men compared with 1,126 drafted in 1968, 2,329 in 1967, 2,596 in 1966 and 2,830 in 1965.

The stabilization of the buildup of forces associated with the Vietnam war and with a large number of volunteers made it possible to keep the doctors draft low, the Pentagon said. All of the physicians will go into the Army. Some of the osteopaths and optometrists will go into other services. None will go into uniform until July.

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The National Research Council charged that most ambulances in the U.S. are not "providing emergency care to the critically injured." It cited a lack of equipment, supplies and untrained attendants.

The Council said that "hearses and station wagons, commonly used as emergency vehicles," do not carry the necessary equipment or provide the space for such equipment "for the carrying out of modern resuscitative procedures either at the scene of an accident or during transportation." It said "action must be taken to develop and enforce nationwide standards for ambulance service," because accidental injuries are the leading cause of death during the first half of a person's life span.

"Only 10 states have statutes prescribing the equipment to be carried by an ambulance, and the federal guidelines for motor safety do not cover the special features necessary to safe transport of the critically ill or injured," the council reported.

The National Research Council is a subsidiary of the National Academy of Sciences, an organization created by a congressional charter in 1863.

Council Minutes, Arkansas Medical Society
February 23, 1969

The Council of the Arkansas Medical Society met at 12:00 noon on Sunday, February 23, 1969, at the Sam Peck Hotel in Little Rock. Present were: Thomas, Fowler, Shuffield, Hayes, Saltzman, Edwards, Gray, Bell, Millar, Townsend, Duzan, Kemp, Wood, Kennedy, McCrary, P. Kolb, Kirby, Long, Norton, Snodgrass, Hyatt, Whittaker, Chudy, George K. Mitchell, Winston K. Shorey, A. C. Bradford, Morriss Henry, Ralph Wooley, Mr. Eugene Warren, Mr. Paul Harris, Mr. Paul Peeples and Mr. Paul Schaefer.

The Council transacted business as follows:

1. The Council received a request from the Inter-Agency Council on Smoking to contribute to the cost of signs designed to discourage smoking which would be placed outside St. Vincent Infirmary in Little Rock. Upon the motion of Shuffield and Duzan, no action was taken.

II. The Council directed that the chairman of the Council appoint an alternate delegate for Dr. Lee Parker as the Society's representative to the Advisory Council for the Regional Medical Programs.

III. Upon the motion of Thomas and Saltzman, the budget as submitted by the Budget Committee was approved.

IV. Dr. Thomas reported that the complaint by the staff of the Dermott Hospital to the Joint Commission on Accreditation of Hospitals was well received at the joint meeting of the AMA and the Joint Committee in Chicago.

V. Dr. Shuffield reported on the status of legislation in the State Assembly. It was directed that a letter of commendation be written to Dr. Francis Henderson and the members of his committee to compliment them on the excellent work on Title XIX legislation which was accomplished by Dr. Henderson's Committee on Comprehensive Health Planning.

VI. Dr. Saltzman presented the report of audit which had previously been mailed to members of the Council. Upon the motion of Saltzman and Hayes, the Council accepted and approved the report.

VII. The Council approved the Executive Committee action which sanctioned a proposal by the Medical Center for a grant under the Regional Medical Program. Under the proposal, the Medical Society will have no day-to-day responsibility for the program but will be represented on the continuing education program's board and committees.

VIII. Dr. Townsend explained to the Council that the House of Delegates' recommendation to employ a public relations man had not been implemented for the reason that a source of funds to pay the expenses of a public relations department had not been voted by the House of Delegates. The Executive Committee deemed it unwise to employ a man until a permanent source of revenue to pay for his activities was voted by the House of Delegates. Dr. Townsend pointed out that the small surplus in the budget for 1969 would not pay a man's salary. He also called the attention of the Council to the fact that there would be secretarial and travel expenses to be added to the salary cost of the new employee. Dr. Townsend called on Dr. Calvin Bradford, chairman of the Public Relations Committee which originally recommended the employment of a public relations man. Dr. Bradford stated that he felt the need of the Society was not for publicity but for strengthened internal relations with county societies and individual members. He reiterated his feeling that a man to develop these relations is needed and that the Society should vote a dues increase to provide for Committee estimated that the annual the additional personnel. The Budget cost of a public relations department, including salary for the PR director, salary for a secretary and travel for the director, would total approximately $18,900.

IX. Dean Shorey informed the Council of the formation of a Medical School Alumni Association to be called "The Caduceus Club." The Caduceus Club will sponsor reunions of Medical School classes and engage in other activities common to alumni associations. He announced that a reunion for Arkansas graduates will be held at the Americana Hotel in New York during the AMA meeting in June 1969.

X. Dr. Ralph Wooley of Pine Bluff was introduced and discussed his experiences with the regional medical programs and other government agencies.

XI. The report of the Medical Study Committee to the Department of Correction, State of Arkansas, submitted by Dr. W. J. Wilkins, Jr., chairman, was discussed at length. The Council voted, upon the motion of Kennedy and Edwards, to approve the report and directed a copy be sent to each member of the Council. It was further directed that Dr. Wilkins and the members of his committee be complimented on their work and requested to continue. The report will be released to the newspapers as soon as word is received from Dr. Payton Kolb that it has been accepted by the board of the Department of Correction.

XII. Dr. George Mitchell advised the Council that the outgoing secretary of Health, Education and Welfare, Wilbur Cohen,

had decreed that expenditures for doctors' fees under Medicare must be reduced and that the range of fees payable by Medicare under the usual and customary system must be reduced to 83%. Dr. Mitchell stated that at present 92% of all fees submitted by the Arkansas physicians were within the "usual, customary and reasonable" range and were paid. He advised the Council that he had written the Department of HEW that he felt Arkansas Blue Cross-Blue Shield's method of arriving at acceptable usual and customary fees was equal or superior to the method used by the Department. He further stated that Blue Cross-Blue Shield plans to vigorously oppose the new regulation.

XIII. The Council considered a request of the president of the Arkansas Chapter of the Student American Medical Association for an increase in the allowance for travel which has been voted in previous years by the Arkansas Medical Society. Upon the motion of Saltzman and Gray, the Council voted to increase the allowance from $250 to $400 and to advise the local chapter that the officers of the Medical Society would be glad to meet with them and to have the delegates to the New Orleans meeting report to the Council.

XIV. Approved legislation submitted by the State Health Department requesting funds to complete a state-wide emergency communications system now under development.

XV. Upon the motion of Kemp and McCrary, the Council voted to add the Arkansas Medical Society's name to sponsorship of a series of seminars and lectures to be given in schools throughout Arkansas by the AMA Council on Foods and Nutrition.

XVI. Referred to the House of Delegates and the Committee on Constitution and By-Laws a request by the Sub-Committee on Aging that it be made a committee in its own right rather than a sub-committee of the Committee on Public Health.

XVII. Approved Executive Committee action by which it voted to pay expenses for Speaker Price and Vice Speaker Chudy to attend a meeting in Atlanta.

XVIII. Approved travel for members of the Committee on Medical Education to an AMA meeting in Memphis.

XIX. Dr. Shuffield discussed the rising costs of malpractice liability insurance and the difficulty of obtaining it. After a general discussion, and upon the motion of Shuffield and Wood, the Council voted to ask the Society's Insurance Committee to investigate the possibility of establishing a Society-owned liability insurance company which would be re-insured by a large, well-established insurance firm.

The Council adjourned at 2:45 P.M.

Approved: T. E. Townsend, M.D.
Chairman of the Council

Report of Medical Study Committee to Department of Corrections, State of Arkansas

W. J. Wilkins, Jr., M.D., Chairman

The report of the Medical Study Committee to the Department of Corrections, State of Arkansas, appointed by the Arkansas Medical Society involves the third phase of the work of this committee inasmuch as a report on phase one and phase two was presented to the Legislative Council on October 27, 1968.

Phase one included familiarizing the members of the committee with the penal institutions, including the physical and administrative aspects, and the health care of the inmates and evaluation thereof with recognition of the problems which were present. The second phase of the work of this committee consisted of categorizing the immediate problems or temporary solutions as compared with the long range problems and permanent solutions. A description of these findings was presented in the preliminary report on October 27, 1968.

Those problems requiring urgent or immediate attention essentially involved patient care or medical treatment but also included certain aspects of sanitation, method of determination of terminal illness and the institutional threat of a continuing series of hepatitis cases. First, with regard to sanitation, the committee feels that the absence of basic plumbing and toilet facilities in the maximum security unit as a result of the violent destructive behavior of these particular inmates results in a deplorable condition. The unit itself is unsatisfactory from a

health standpoint, but these basic provisions need immediate remedy. We are pleased to know that the State Board of Health recommendation for the maximum security area to be constructed will include recommendations for sanitation facilities and will be in accordance with the codes of the State Board of Health and other building codes. Our committee endorses this recommendation and stresses the urgent need for immediate construction of this facility. In pursuing the problem of the persistent endemic occurrence of hepatitis Dr. Willie Harris called on the United States Public Health Service for their investigation and recommendations. We wish to compliment him on this action and yet we realize that a continuing effort in preventive medicine incorporating the findings and recommendations of the public health service must be carried out in the future. Thirdly, this committee recommends that the determination of a "terminal illness" involves a significant responsibility that should not rest on one individual's shoulders. This committee, therefore, recommends that when the prison medical officer believes an inmate might be suffering from a terminal illness and thereby be eligible for clemency considerations, the opinion of two consultants who are qualified and recognized in the field of medicine involved by the case under question be obtained. These opinions, along with the recommendation of the prison medical officer, should thereupon be submitted through proper channels for disposition of the case.

The more immediate needs with regards to the medical treatment of the inmates hinged on the decision to continue with the present system of medical care until long range plans could be made. The problems and inadequacies of immediate concern were remedied by the adoption of certain administrative procedures and an improvement in lines of communication and organization. Again, Dr. Harris was able to obtain elective surgical correction for a number of the backlog of inmates who were awaiting elective surgery. He did this by utilization of the rehabilitation program with the cooperation of a Little Rock surgeon. Meanwhile, through the cooperative efforts and suggestions of Dr. George Jackson, superintendent of the Arkansas State Hospital, a standard operating procedure was printed and methods of communication designated responsible personnel or established which has reinstated the system of consultative medicine being provided by the Arkansas State Hospital and enabling surgical care to be provided also by the Arkansas State Hospital.

This committee feels that Dr. Willie Harris of England should be complimented on his sincere, concerned efforts to provide medical care on a part-time basis to the prisoners at Tucker and Cummins. Although this is most difficult for him to perform and it is somewhat less than ideal with regard to patient care, in the opinion of this committee the present medical care is

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ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: 90 RHYTHM: Sinus

P-R: .14 sec. QRS: .90 sec. Q-T: .40 sec.

SIGNIFICANT ABNORMALITIES:

Significant Q in aVF, II, III.
Abnarmal S-T elevatian in aVF, II, III, with recipracal depressian in aVL, I.
Abnarmal T changes all leads.
Delayed intrinsicaid deflectian left precardial leads.
Artifact in V3; lead maunted upside dawn.

INTERPRETATION: Abnarmal

Acute transmural myacardial infarctian, pasteriar.
Left ventricular hypertraphy.
Anteriar extensian?

COMMENT:

Patient had repeated myacardial infarctians and eventually died of cangestive failure.

ANSWER—What's Your Diagnosis?

DIAGNOSIS: Annular Pancreas.

X-RAY FINDINGS: Obstructian in the mid partian of the descending duadenum. The obstructian is partial as shawn by barium and gas in the distal small bawel. The size and partial nature of the abstructian are characteristic of the diagnosis.

satisfactory and Dr. Harris has indicated a willingness to continue in this capacity until a better, long range program can be established, provided that this is in the reasonably near future. Also, the Lazenby and Blackwell Clinic in Dumas agrees to continue caring for injuries or emergency patients as they have in the past.

This committee feels that the general purpose of the medical care of the prison population is to diagnose and correct any physiological malfunction the inmate may have when he enters; diagnose, treat and correct any illness or injury that occurs to him while imprisoned; and, in general, to release him to society in the best possible physical and mental condition. This, then, is the purpose of the long range recommendation of this committee. It is the feeling of this committee that this can only be accomplished by a full time physician for the prisons. Furthermore, this position has been established and a salary has been authorized. This committee then urgently recommends that a full time physician be obtained, and that under his supervision and recommendation the remainder of the medical care program for the prisoners be carried out. It is recognized that there is difficulty in attracting a full time physician under the present circumstances. It is the feeling of this committee that the prison board should make every effort to employ such an individual, and that consideration should be given to added incentives such as the provision of a residence in a nearby city and augmentation of the presently authorized salary. We recommend a reasonable and realistic salary increase, believing that it will be necessary in our present economy to obtain a qualified physician. Furthermore, we feel called upon to call attention to subsequent legislation which has reduced the salary appropriation after the present biennum. We criticize this as being absurdly inadequate as evidenced by the failure to obtain a physician at the higher salary. In support of this contention, it should be pointed out that during the month of December, 1968, at Cummins unit infirmary, there were 1,331 inmates treated on the building sick call. There were 460 laboratory procedures, there were 137 X-ray films exposed, and when various innoculations, therapeutic injections, new admission physical examinations and therapy treatments were added to this number, there were 2,390 treatments given. In addition, there were three patients receiving minor surgery at the Cummins infirmary, eight people treated in the Desha County Hospital of Dumas, mostly for injuries or emergencies, five patients receiving major surgery at the State Hospital, and 110 patients receiving outpatient consultation at the State Hospital. This indicates a considerable practice too large to try to handle on a schedule consisting of one-half day three days a week.

Furthermore, if the efforts of the prison board to employ a full time physician are not productive, we urge the consideration of investigating the possibility of establishing a position at the University of Arkansas School of Medicine of faculty rank which would involve full time responsibility for the care of patients at the Arkansas Department of Correction. It is the feeling of this committee that the State of Arkansas must assume responsibility for the care of the inmates at the state penal institutions. We feel, therefore, that it is logical for a state institution to participate in this care. At present, Arkansas State Hospital is participating and has certain clinics which operate efficiently. However, other clinics are not administered in the same fashion and consequently do not conduct outpatient consultative care in the same manner. Therefore, although their willingness and sincere interest is greatly appreciated, this committee feels that a more unified treatment program would ultimately prove advantageous. The committee wishes to thank Dr. George Jackson and Dr. Winston Shorey, Dean of the Arkansas Medical School, for their sincere interest and their cooperative efforts in approaching this problem and providing us with their wisdom and recommendations. We are further indebted to Dr. Shorey for the evidence of his interest in appointing a faculty committee to investigate the role that the University Hospital might assume concerning the medical service provided inmates. This committee recognizes problems of security and expense involved therein, but also believes that the quality of medical supervision would be enhanced by such an arrangement. This committee also wonders if the funds of MEDCORE might be used to supplement the salary of this physician as well as to upgrade the plasma program. This committee wishes to go on record as recognizing the urgent need for a full time medical officer to care for the prison population and we wish to emphasize the necessity for the prompt implementation of this program.

The other recommendations concerning the long range program would of necessity be implemented by the medical officer and would demand his evaluation and judgment.

(1) Updating the building, the equipment and procedures would involve recognizing the need for bed space for 20 ill persons at a time, excluding epidemics or mass casualties. This is based on an estimated population of 1,500 inmates. Also, it is estimated that about 10 persons are in need of psychiatric care at all times and the patient load of 50 to 75 persons requiring outpatient psychiatric care regularly can be anticipated.

(2) This committee recommends the maintenance of an ambulance in operating condition at all times.

(3) We further recommend that for adequate rehabilitation of a prisoner, elective or cosmetic surgery preparing him for work as a productive citizen prior to his return to the free world should be provided.

We wish to commend the present board for the institution of psychiatric evaluation of all new inmates beginning in May, 1967, and the recent provision of two psychiatrists each available one-half day per week for psychiatric evaluation under the rehabilitation program. Mr. Robert Sarver, the new Commissioner of Corrections, has begun working out a classification system including psychiatric classification for all inmates which we feel is urgently needed. Yet to be provided is a program of psychotherapy for all inmates in need of it.

(4) Sanitation. It is our feeling that the crowded conditions in the barracks is most undesirable and can only be remedied by a building program that will provide adequate space for all inmates. Until this is done, we feel that the present arrangement is an emotional, physical and correctional handicap.

(5) Food and diet. While the services of a dietitian have been available each summer and many improvements have recently been made in the diet department and in the kitchen facilities, it is recommended that the dietary service of the State Department of Health be contacted to see what assistance could be provided in this area.

(6) Medical treatment. With the procurement of a full time medical officer, regular physical examinations would be desirable and might be possible. He also might provide technical training of inmates as a rehabilitation measure, supervision of improved and adequate records on all inmates would be possible. Continuity of care would be significantly present. This would solve many problems peculiar to prison population. In recent months some of the functions of prison trustees as corpsmen have been replaced by free world employees. We recommend that around-the-clock coverage be provided by free world dispensary corpsmen and that no trustee have the responsibility of determining who is hospitalized or who is treated. The list of approved drugs in the pharmacy could be reviewed by the full time physician and be revised in accordance with accepted prison practice. Whereas, there is no evidence of any narcotic or habit forming drugs being kept in the pharmacy, the prison population occasionally acquires some drug and a prisoner may manifest said drug effects. With closer supervision and control, the pharmacy would not be suspected. It would also be the responsibility of the full time physician to supervise the plasma program and pursuant to this consideration might be given to utilization of the MEDCORE funds to supplement this salary. The possibility of research programs available to a position established by the University should also be considered. Certainly, the prison population would be a suitable control group for any research program and the custodial care of the elderly and the handicapped among the prison population would also be affected by him. Certainly this type patient is unable to perform certain work duties expected of the normal population. This full time physician could also evaluate how many isolation beds would be needed and could make recommendations on the needs for any building modification before it is undertaken.

(7) Administration. This committee wishes to express their recognition of the economies effected by Mr. Bobby Goss as business manager. We feel that the consolidation

of the business office in Little Rock and the requisitioning of supplies in larger quantities for longer periods of time has effected a saving. We recommend that MEDCORE consider the provision of funds to the penitentiary in a lump sum basis monthly so that economy can be accomplished within the guidelines of approved expenditures which should be designated by MEDCORE. It would be desirable for an annual projection of expenses to be submitted like most grant proposals by annual budgets are. If this requires enabling legislation, we would favor support of this. In anticipation of problems of finances in the future, we believe that clarification should be established on the ability of the prison to receive a grant for medical purposes. We would favor separate funding from which only the dispersing officer of the penitentiary could spend. This could be protected by providing that any unauthorized expenditure could be reimbursable from the general fund. The other administrative topic pertinent to the welfare of the prison population would be the establishment of a classification center. At this time, complete psychiatric and health evaluation could be provided and specific plans for total person rehabilitation could be projected. It should be pointed out that in an intermediate reformatory the health facilities are very important in this age group which normally consists of youthful offenders.

In conclusion, this committee wishes to thank each of those who participated in our meetings and contributed their advice and thinking for our enlightenment.

Minutes of Quarterly Meeting of Arkansas HIP Committee February 16, 1969

The meeting was held at Hotel Sam Peck, 9:30 a.m., Sunday. Dr. Tom Van Duyn, Chairman, presided. Those present:

Tom Van Duyn, Tom Honeycutt, James W. Branch, Hugh Means, George E. Brittain, Stephen E. Safly, John T. Bowen, Graham T. Nixon, Herb Tinson, Paul Peeples, Marshall Driver, Bill Kennedy.

Mr. Safly of the Arkansas Insurance Department made an interesting and informal talk which was well received by the members.

He revealed that the department has had an average of 50 complaints per week in 1968, but that these are down to an average of 30 per week thus far this year.

Mr. Safly cautioned that there are insured persons who are failing to file for their insurance benefits because of allegations by hospital personnel that their coverage is inadequate, and unlikely to provide any benefits. Information in this regard should be passed on to the department for investigation, rather than to the insured, for it may prove a greater burden when the insured makes no effort to collect benefits because of such statements from hospital personnel. It was indicated this could also apply to physicians. A further reason against such practice is the possibility the personnel could be charged with practice of law.

A question had come to the department about assignments and their enforceability. Mr. Safly pointed out that the department regards these as plainly enforceable under the law. Benefits must be paid according to the assignment if it is otherwise in order.

A brief discussion of bills, being recommended to the legislature by the department followed Mr. Safly's talk.

Mr. Nixon said he would incorporate into his newsletter to the hospitals the position of the department regarding hospital personnel alluding to insurance coverage.

Dr. Joe Norton and Victor McKinistry asked the committee to consider the situation they find themselves in, respecting completion of claim forms. The radiologists do not make a diagnosis, and bill separately. The insured then asks his doctor to complete the form so that benefits can be paid for the service of the radiologist. It was felt that the local doctor may be aggravated by this request since it would be likely he would derive no insurance benefit.

The medical segment present indicated that this ought not to be a particular problem. Most of their patients would have been referred to the radiologist in the first place. It was suggested that the x-ray report be attached to the claim form so that the local doctor could review it for his needs and future treatment of the insured.

Hugh Means, administrator of Springdale hospital, expressed concern that since medicare the insurance carriers were requiring more informa-

tion from the hospitals, which added to their work immensely.

The next meeting will be in May. Date will be announced later. We will follow the practice of passing the meeting should there be insufficient items for the agenda.

Mr. Safly stated that the department will have a representative attend our meetings.

At its February meeting, the Little Rock University Board of Trustees granted approval to the curriculum for a Bachelor of Science degree in Radiologic Technology. This program is offered in cooperation with Arkansas Baptist Medical Center, St. Vincent Infirmary, Sparks Memorial Hospital and the University of Arkansas Medical Center.

PERSONAL AND NEWS ITEMS

Dr. Shearer Moves

Dr. F. E. Shearer, who practiced medicine at the Holt-Krock Clinic in Fort Smith for 25 years, recently moved to Alma. His new office is located on the Alma business route. His practice will be limited to Pediatrics.

Association of Dr. Farrar Announced

Dr. A. R. Brown and Dr. H. C. Palmer, Jr., of the Medical Arts Center in Searcy recently announced the association of Dr. Henry C. Farrar, a surgeon. Dr. Farrar served as a missionary in Nigeria, Africa for three years; he established the Nigerian Christian Hospital.

Dr. Gray Gives Scholarship

Dr. E. M. Gray of Mountain Home, a retired physician, recently donated $1,000 to Philander Smith College at Little Rock to be used for scholarship assistance to worthy students.

Dr. Saltzman Honored

Dr. Ben N. Saltzman, Mountain Home, was honored in February by Twin Lakes Aerie No. 3183, Fraternal Order of Eagles, for his role in the development of the Twin Lakes area and Mountain Home and his many humanitarian projects.

Dr. Little Joins Clinic

Dr. C. J. Little has joined the Lake Village Clinic. Prior to a 30-month tour of duty with the United States Army, he had practiced at West Memphis.

Dr. Hudson Honored

Dr. W. A. Hudson of Harrison was honored by the members of the Jasper Christian Church with a dinner on his 78th birthday, February 23rd.

Dr. Poole Aids Special Study

Dr. Grover Poole of Jonesboro testified in February at the National Academy of Science in Washington, D. C., concerning his experiences in the May 15, 1968, tornado which struck Jonesboro. A study group is focusing on training programs to aid in case of national disasters.

Future Physicians Meet

The February program of the Osceola Kiwanis Chapter, Future Physicians' Club, consisted of demonstrations in laboratory technology, bedside nursing and x-ray techniques. Dr. Sybil Hart of Blytheville participated in the demonstrations.

Physicians Attend Meeting

Dr. W. H. Lane and Dr. Douglas Lowrey of

Russellville attended a February meeting of the Arkansas Chapter, American Academy of General Practice in Little Rock.

Physicians Re-elected to Academy

The following physicians have been re-elected to active membership in the American Academy of General Practice: Dr. F. Paul Hogue, Benton; Dr. Neylon C. David, Jr., Brinkley; Dr. Thomas A. Formby, Searcy; Dr. Harold N. Cogburn, Forrest City; Dr. Russell W. Cobb, Malvern; Dr. John E. Alexander, Magnolia; Dr. Robert H. Langston, Harrison; and Dr. Wayne G. Pullen, DeQueen.

Dr. Hayes Attends Meeting

Dr. Harry Hayes, Jr., attended the Ninth Annual Meeting of the Canadian-American Medical-Dental Association in Aspen, Colorado, in February. He presented a talk on "Fractures of the Mandible".

Tribute Paid Dr. Goldstein

A surprise party for Dr. Davis W. Goldstein of Fort Smith was given in February by the physicians and employees of Cooper Clinic. Dr. Goldstein, one of the founders of the clinic, recently retired after more than 50 years of practice.

Dr. Saltzman is Speaker

At the 3rd National Congress on the Socio Economics of Health Care held March 28-29 in Chicago, Dr. Ben N. Saltzman of Mountain Home spoke on the subject "Current Experiments". Dr. Saltzman is Immediate Past-Chairman of the AMA Council on Rural Health.

Dr. Crow Made Fellow

Dr. Neil E. Crow of Fort Smith was made a fellow of the American College of Radiology at the annual meeting of the College in Atlanta February 21st.

Physician Represents Speakers Bureau

Dr. Henry G. Hearnsberger, Jr., of Little Rock, was the speaker at the spring Council meeting of the White County Extension Homemakers Club in Searcy on March 27th. The subject of his talk was "How Your Emotions Affect Your Body."

DR. JAMES H. BUIE has been accepted for membership in the Sebastian County Medical Society. A native Fort Smithian, Dr. Buie has returned to practice Orthopaedic Surgery at the Holt-Krock Clinic, 1500 Dodson Avenue, Fort Smith.

After attending Abilene Christian College for his pre-medical education, Dr. Buie was graduated from Tulane University School of Medicine in 1961. He served an internship at the Philadelphia General Hospital and began residency training at the same hospital. Dr. Buie's residency training was completed at Tulane in 1968. He was on active duty with the United States Army from 1963-65 at Fort Hood, Texas.

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The Jackson County Medical Society has added DR. GUILFORD M. DUDLEY to its roll of members. Dr. Dudley was born in Swifton, Arkansas. He was graduated Cum Laude from Vanderbilt University in 1958. His M.D. degree was received from Vanderbilt University Medical School in 1962. Dr. Dudley completed an internship at the University Medical Center in Jackson, Mississippi.

After one year of residency training at the University Medical Center in Jackson, Dr. Dudley transferred to the Vanderbilt University Medical School to complete his residency in Internal Medicine. Dr. Dudley served two years with the United States Air Force, during which time he was staff internist at the Clinical Research Laboratory, Williford Hall Hospital, Lackland Air Force Base.

Dr. Dudley was awarded a Fellowship at the University of Arkansas Medical School in Hematology and was later a Research Associate for three months on management and treatment of leukemia.

Dr. Dudley has been associated with the Harris Hospital and Clinic in Newport for about six months. His practice is limited to Internal Medicine.

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DR. JAMES I. BALCH is a new member of the Sevier County Medical Society. He was born at Balch, Arkansas, and attended Arkansas College at Batesville, receiving a B.A. degree in 1957. In 1963, he was graduated from the University of Arkansas School of Medicine. After completing an internship at the Arkansas Baptist Hospital in Little Rock, Dr. Balch entered a residency in general surgery at the Scott and White Clinic in Temple, Texas.

Dr. Balch has been a member of the National Guard since 1964. He has been associated with the DeQueen Clinic in DeQueen, Arkansas, since July, 1968, in the practice of General Surgery. He is a candidate for membership in the American College of Surgeons.

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The Drew County Medical Society has recently accepted for membership DR. FREDERICK N. BURT. Dr. Burt is a native of Ashley County and attended Arkansas A. & M. After receiving his M.D. degree from the University of Arkansas School of Medicine in 1964, Dr. Burt served an internship at John Peter Smith Hospital in Fort Worth, Texas.

Dr. Burt served three years with the United States Air Force. He served as general medical officer and flight surgeon.

Dr. Burt is associated with Dr. J. P. Price and Dr. Paul Wallick at 216 South Main Street in Monticello. He is a general practitioner.

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DR. JERRY M. FRANKUM, JR., has recently been added to the membership roll of the Jackson County Medical Society. He is associated with Drs. John D. Ashley, Roger L. Green and Thomas E. Williams at Second and Laurel Streets in Newport and specializes in surgery.

Dr. Frankum was born in Blytheville. He obtained his pre-medical education at Arkansas State University and was graduated from the University of Arkansas School of Medicine in 1962. Dr. Frankum completed an internship at the John Gaston Hospital, University of Tennessee College of Medicine, Memphis, and did residency work at the Veterans Administration Hospital in Little Rock and the Baptist Hospital in Memphis. Dr. Frankum practiced at Trumann for one year prior to locating in Newport.

Dr. Frankum is board eligible in his specialty of surgery.

* * *

A new member of the Sebastian County Medical Society is DR. J. D. SIMPSON. Dr. Simpson is an anesthesiologist. His business office is in the Executive Building, 104 North 13th Street in Fort Smith.

A native of Westville, Oklahoma, he attended Memphis State College, the University of Alabama and the University of Arkansas for his premedical education. He was graduated from the University of Tennessee College of Medicine in 1950. His internship was at St. John's Hospital in Tulsa, and his residency training was completed at the City of Memphis Hospitals.

Prior to entering residency training, Dr. Simpson had been in the private practice of medicine for thirteen years—at Sapulpa, Oklahoma, and Raiford, Florida. He served two years with the United States Army, 1943-45.

Dr. Simpson is a member of the American Society of Anesthesiologists, Tennessee State Society of Anesthesiologists, and the International Anesthesia Research Society.

* * *

DR. JIM C. CITTY has recently been accepted for membership in the Sevier County Medical Society. A native of Idabel, Oklahoma, he received a B.S. degree from Harding College at Searcy, Arkansas, in 1961, and was graduated from the University of Tennessee School of Medicine in 1965. Dr. Citty served an internship at the William Beaumont Hospital in El Paso, Texas, and did residency work at Brooke Army Medical Center in San Antonio. He completed this tour of military service in July, 1968, and joined the staff of the DeQueen Clinic in DeQueen, Arkansas. He is a general practitioner.

* * *

DR. CURTIS J. KROCK, a recent addition to the staff of the Holt-Krock Clinic in Fort Smith, is a new member of the Sebastian County Medical Society. Dr. Krock specializes in Internal Medicine.

A native of Fort Smith, he received a B.A. degree from Stanford University in 1957 and was graduated from Johns Hopkins University School of Medicine in 1961. His internship was completed at Barnes Hospital in St. Louis. Dr. Krock completed one year of residency training in Pathology at Johns Hopkins Hospital and

then completed two years of residency training in Internal Medicine at Barnes Hospital in St. Louis. He was awarded a Chest Fellowship at Duke Medical Center and was at that institution from July, 1965, to April, 1966. Dr. Krock was on active duty with the Army Medical Corps at Fitzsimmons General Hospital in Denver from 1966 to April, 1968.

Dr. Krock has been at Holt-Krock Clinic since June, 1968. He specializes in Internal Medicine with a Chest specialty interest. He is certified by the American Board of Internal Medicine.

* * *

The Sebastian County Medical Society has recently added DR. FREDERICK P. FEDER, JR., to its membership roll. Dr. Feder is in the practice of Urology at 1400 South "D" Street with Dr. Archie Hewett.

A native of Baltimore, he received an A.B. degree from the Johns Hopkins University in 1956 and an M.D. degree from Johns Hopkins University School of Medicine in 1960. Dr. Feder interned at Strong Memorial Hospital in Rochester, New York, and was in Surgery residency at the same institution from 1961-1962. He served in the United States Air Force from 1962-64 and then returned to Strong Memorial Hospital for a residency in Urology, which he completed in June, 1968. Dr. Feder has been in practice in Fort Smith since July.

* * *

DR. JAMES A. GILL is a new member of the Sebastian County Medical Society. A native of Magnolia, he received his pre-medical education at Southern State College of Magnolia. In 1962, he was graduated from the University of Arkansas School of Medicine. He interned at the Arkansas Medical Center and then served two years with the Army Medical Corps. He completed residency training in Radiology at Arkansas Medical Center and began practicing in Fort Smith in July, 1968. Dr. Gill is board eligible in his specialty of Radiology and is a member of the Arkansas Radiological Society.

Dr. Gill is associated with the Holt-Krock Clinic, 1500 Dodson Avenue, Fort Smith.

* * *

A recent addition to the membership roll of the Sebastian County Medical Society is DR. WILLIAM P. COLEMAN, JR. Dr. Coleman is associated with Dr. Carl Williams in the practice of Surgery at 522 South 16th Street in Fort Smith.

A native Fort Smithian, he attended Hendrix College for his pre-medical education and was graduated from the University of Arkansas School of Medicine in 1963. He interned at the University of Arkansas Medical Center and did residency work there. Dr. Coleman also did residency work at the University of Missouri Medical Center. He served with the Arkansas National Guard.

* * *

DR. WALLACE W. SMITH is a new member of the Cleburne County Medical Society.

Dr. Smith is a native of Imboden, Arkansas. He received a B.S. degree from Arkansas Polytechnic College in Russellville in 1963. Dr. Smith has a record of more than nine years of active military service. In 1967, he was graduated from the University of Arkansas School of Medicine in Little Rock. His internship was completed at the St. Vincent Infirmary in Little Rock.

Dr. Smith is in General Practice at 109 West Main, Heber Springs, Arkansas.

* * *

A new member of the Miller County Medical Society is DR. THOMAS J. ALSTON.

Dr. Alston is a native of Council Bluff, Iowa. He received a B.A. degree from the University of Arkansas in 1959. Dr. Alston was graduated from the University of Arkansas School of Medicine in 1963. He interned at the United States Naval Hospital in Portsmouth, Virginia. From 1963 to January, 1968, he served in the United States Navy. From January 1968 to July 1968, Dr. Alston completed a residency in anesthesia.

Dr. Alston is in General Practice at 1400 College Drive, Texarkana, Arkansas.

* * *

DR. EUGENE T. ELLISON has reecntly been accepted for membership in the Miller County Medical Society.

He is a native of Chattanooga, Tennessee. Dr. Ellison received a B.A. degree from the Vanderbilt University in Nashville, Tennessee, in 1930. He was graduated from the Vanderbilt School of Medicine in 1934.

Dr. Ellison holds positions on the Staff of the Wadley Hospital, St. Michael's Hospital and Four States Memorial Hospital.

Dr. Ellison has practiced Obstetrics and Gynecology at 4800 Texas Boulevard, Texarkana, Arkansas, for twenty years. He previously held membership in the Arkansas Medical Society for many years.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis and Respiratory Disease Association

RESIDUAL PULMONARY FINDINGS IN CLINICAL HYALINE-MEMBRANE DISEASE

Follow-up of seventy infants who had had hyaline-membrane disease at birth revealed that six had X-ray evidence of pulmonary fibrosis or overexpansion or both. These sequelae appear to result from the reparative process to the original insult to lung tissue.

Pulmonary sequelae are known to occur in infants who survive hyaline-membrane disease, but the frequency and origin of such sequelae are not known. The study reported was undertaken to examine the relation between certain aspects of the acute episode and the clinical form and long-term course of children surviving hyaline-membrane disease in infancy.

Between September, 1961, and June, 1965, 90 infants were discharged from the premature nursery of Vanderbilt University Hospital as recovered from clinical hyaline-membrane disease. Adequate follow-up examinations and X-ray studies were available for two or more years on 70 of the children. The ratio of boys to girls was 2:1, which is typical of experience with hyaline-membrane disease.

Among the 70 children were 19 infants who had required prolonged ventilatory assistance in a respirator. The 51 infants who had not required such care were less severely ill than those who did.

During the follow-up period, 17 in the non-respirator group had pneumonia, bronchiolitis, or both. Two of the infants who had had respirator care had an unusual sequence of respiratory illnesses. Although mildly abnormal X-ray findings at follow-up did not appear to be related to clinical or biochemical values recorded during the period after birth, at least one X-ray film of each of six children had "moderate" overall abnormalities. All had mild pulmonary fibrosis, and five had moderately extensive infiltrates at some time.

Frank M. Shepard, M.D.; Richard B. Johnston, Jr., M.D.; Eugene C. Klatte, M.D.; Henry Burko, M.D.; and Mildred Stahlman, M.D. *The New England Journal of Medicine,* November 14, 1968.

HYPOXIA SEVERE

These six children had been severely ill and had required respiratory therapy for 34 to 116 hours. They had a tendency to more severe hypoxia than the other respirator-treated children, but the difference was not significant.

The two infants in the respirator group with the unusual sequence of illnesses had frequent severe episodes of pulmonary overexpansion associated with expiratory wheezing, rales, and rhonchi, for which they were hospitalized frequently during the first two years of life. There was no history of allergic disorders in the families of these children, and the wheezing and overexpansion did not respond to epinephrine as would have been expected of allergic bronchospasm. The findings of diffuse, patchy peribronchial and alveolar fibrosis suggest that this may represent an uncommon sequel to clinical hyaline-membrane disease.

In all six children the radiologic abnormalities observed were increased parenchymal markings suggestive of pulmonary fibrosis, overexpanded lung fields, and infiltrates. These infants were among the 19 who had such severe hyaline-membrane disease that the use of prolonged negative-pressure ventilatory assistance was required for survival. The question is whether this residual pulmonary disease is an inevitable part of the recovery process from severe hyaline-membrane disease or whether this is an iatrogenic disorder secondary to oxygen administration, respirator therapy, infection, poor pulmonary hygiene, or other possible factors.

IMMATURITY NOT RESPONSIBLE

Immaturity did not appear to be the sole cause of the radiologic and clinical abnormalities noted at follow-up. There was no evidence of intrauterine bacterial pneumonia or extensive secondary bacterial pneumonia to suggest that superimposed infection at the time of the acute difficulty was a factor in the production of residual disease in these children.

In the management of severe clinical hyaline-

membrane disease it is common for the infants to be exposed for prolonged periods to high concentrations of oxygen to combat severe hypoxia. Oxygen toxicity has been suggested as the probable explanation for the severe process in infants so treated.

However, a careful study of infants dying with hyaline-membrane disease suggests a pre-natal event that initiated pulmonary arteriolar constriction, leading to loss of nutritional blood supply to the lung. This is followed by necrosis, slough, and hyalinization of the bronchiolar and alveolar-duct epithelium associated with an exudation of protein-containing fluid into damaged areas. A loss of pulmonary surfactant has been shown to be associated with these events, together with reduced compliance and the development of atelectasis. Vascular damage or a coagulapathy related to the initiating insult may account for the pulmonary hemorrhage occasionally seen.

REPARATIVE PROCESS

In infants who survive extensive tissue injury the subsequent reparative process could result in the peribronchial and alveolar fibrosis such as was seen in the cases in this series and has been reported by others. Such lesions might possibly predispose the infant to respiratory infection and result in a fixed or progressive course of pulmonary fibrosis and overexpansion, with clinical and radiologic manifestations of chronic pulmonary disease.

On the basis of evidence so far reported, oxygen toxicity alone cannot be held responsible for the changes observed. Indeed, the prolonged exposure of the infants in this series to high oxygen concentrations was dictated by clinical and biochemical evidence of a degree of anoxemia that demanded correction for survival.

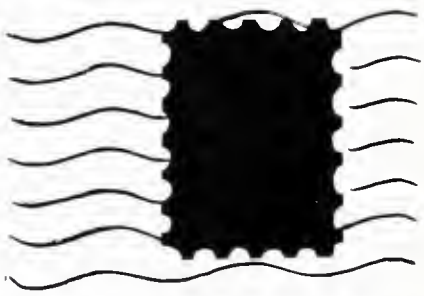
None of the infants in this series treated with negative-pressure respirators and high oxygen concentrations had late progression of pulmonary symptoms leading to death. In only two cases was positive-pressure ventilation also necessary for more than one hour. Arterial oxygen tension, carbon dioxide tension, and pH were repeatedly monitored throughout the course of the disease when more than 40 per cent oxygen was used. Prolonged hypercapnia was never a serious problem in the post-respirator period.

There was no evidence that pulmonary infection due to gram-negative organisms, which often complicates prolonged endotrachael intubation, occurred, nor was there evidence of environmental inhalants such as silica dust as a cause of the persistent pulmonary disease.

BOOK REVIEWS

CLINICAL DIAGNOSIS BY LABORATORY METHODS, Various Authors, Edited by, Israel Davidsohn, M.D., and John Bernard Henry, M.D., illustrated pp. 1308, published by W. B. Saunders Company, Philadelphia, London, and Toronto, 1969. This outstanding textbook of clinical diagnosis should be in every physician's library. Todd and Sanford has grown from a modest, thin volume to one which now encompasses 1308 pages. It is filled with excellent illustrations and charts and this is of particular importance in the field of clinical diagnosis. The format of the book is good. The printed style is easy to read. Of particular interest in this book, to the reviewer, was Chapter 11 on Endocrine Measurements by Henry and Krieg. The section on Medical Microbiology by Shaffer and Goldin is, also, of considerable interest. Physicians who have been out of medical school for a period of years can brush up on cytogenetics from Chapter 32, although it is not an inclusive text. All in all, this is an outstanding book and will be of considerable interest to any practicing physician or medical student.

LETTERS



TO THE EDITOR

Journal of Ark. Med. Soc. February 3, 1969
Little Rock, Arkansas 72200

Dear Sir:

Outgoing Health, Education and Welfare Secretary, Wilbur Cohen, has warned physicians that if they don't hold the line on costs, the government may take action.

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Sincerely,
C. Lewis Hyatt, M.D.
Monticello, Arkansas

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May, 1969

THE JOURNAL OF THE Arkansas MEDICAL SOCIETY

Vol. 65 No. 12

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NEWS—Our readers are requested to send in items of news, also marked copies of newspapers containing matter of interest to the membership.

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Lumbar Intervertebral Disc Disease In The Elderly

Kenneth G. Jones, M.D.*

Even prior to Hyppocrates, healers of men frequently encountered those neuro-musculoskeletal signs and symptoms related to the low back and the lower extremities which, until recently, were variously diagnosed as lumbago, myalgia, neuralgia, neuritis, radiculitis, sciatica, neurodoctitis, myositis, fibrositis, rheumatism or by some other equally misleading epithet. Man's low back disorders are surely as old as, if not older than, his upright posture. If one examines an orthopedic text published as recently as two or three decades past, like Lewin's "BACKACHE AND SCIATIC NEURITIS," 1943, it is difficult not to be nonplussed by the realization that factual knowledge of the normal physiology of the low back and those pathological states affecting it has been acquired only recently. Centuries of thought and investigation were prerequisite before surgeons could be confident in the truth that the most frequent cause of low back pain and sciatica is a lesion of the lumbar intervertebral disc.

As in the acquisition of most knowledge, many little steps lead up to the great stride made by Dandy only 40 years ago when in 1929 he described two patients in whom loose cartilages were surgically removed from the vertebral canal. While preoperatively he was of the opinion that the patient's findings were due to pressure from intraspinal neoplasms, postoperatively he recognized the fragments as sequestrated portions of intervertebral discs and observed that surgery was corrective.

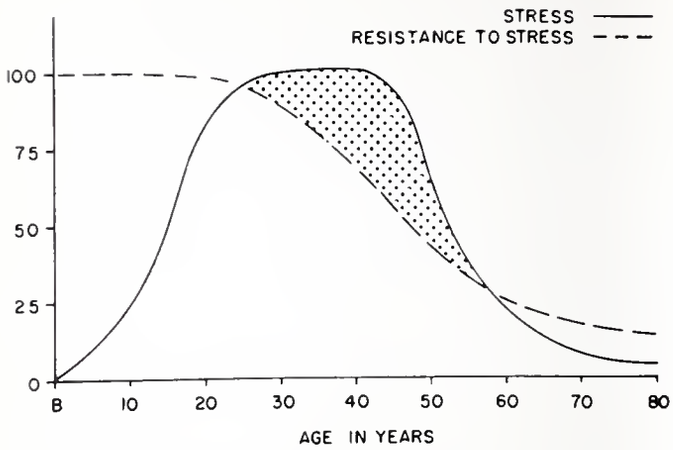
Much earlier, in 1764, Contunio considered the entity "ischias neurosa postica," and, after the lapse of another century Laséque, described the symptoms of sciatica. Kocher's case report of the autopsy findings of a ruptured intervertebral disc at the L-1/L-2 level in 1896 was followed in 1911 with a similar presentation by Middleton and Teacher. These post-mortem demonstrations carried us a step closer to a real understanding of the low back syndrome. Also in 1911, Goldthwait reported a case of sciatica and paraplegia which he attributed to a posterior displacement of an intervertebral disc and suggested that such displacements might be the cause of many cases of lumbago, sciatica, etc. The post-mortem findings of Kocher, Middleton, and Teacher were to become recognized by clinicians as a cause for the varied and perplexing pain patterns found in patients with low back and leg complaints.

But it was Dandy, standing on accurate knowledge slowly accumulated, who surgically demonstrated the lesion in the living patient and offered a new approach to treatment. As a consequence, the clinicians' thinking, relative to this problem, was reorientated. In 1934, Mixter and Barr published statistical substantiation of Dandy's discovery. The disc syndrome was clinically established, but not yet understood.

Subsequently, numerous authors have reported their observations and have expressed their opinions regarding incidence, etiology, pathology, diagnosis, treatments, results, and complications. As the clinical significance of this syndrome became more widely appreciated, an increasing number of clinicians and researchers have given their attention to the changes concomitant with age occurring in intervertebral disc.

Notwithstanding the inexorably progressive catabolic changes which are accumulative throughout life, the greatest incidence of signs and symptoms resulting from abnormal lumbar discs occurs between the middle of the third and the middle of the fifth decades of life; the years of maximum physical development, but also a

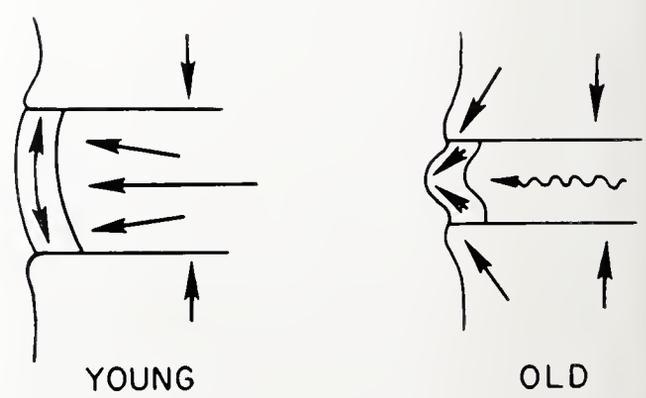
*Little Rock Orthopedic Clinic, 12th and Van Buren Streets, Little Rock, Arkansas 72205.



time of great economic, and consequently physical, stress for most workers. While older individuals seem to have intervertebral discs which are more susceptible to stress, they are less inclined to voluntarily subject their tissues to excessive strains. By way of a retrospective clinical analysis, the interrelationship of age, stress, and ability of the organism's tissues to withstand loading may be depicted graphically as in Fig. 1. Age by decades can be plotted along the axis of the abscissas. Resistance to the intervertebral disc to encountered stresses can then be thought of as maximum at birth and may reasonably be plotted for any age decreasing from the 100 point on the axis of the ordinate, across the decades previously plotted to descend to a state of fractional resistance during later years. Stresses encountered throughout life may be likewise plotted from the axis of the ordinate beginning after birth at an assumed zero point. This stress plot is shown as climbing rapidly during adolescence to cross and to exceed the resistance plot to reach its maximum during the third, fourth, and fifth decades of life and then to descend below the resistance plot during the latter decades of life. Those years during which stress forces applied exceed resistance to stress correspond, of course, to the years of greatest incidence of lumbar disc signs and symptoms. Furthermore, the disparity between the two plots is maximum during the period of greatest incidence. It is not suggested that this graphic presentation of clinical observations is literally precise, but it may assist surgeons to visualize the nuances between age, resistance, and applied stress.

The socio-economic factors that demand most organisms voluntarily accept great stress are recognized and are outside our immediate consideration; as are encountered stresses which are infinite in form and application. But resistance to stress at any given age would seem to be a subject for extensive investigation and reflection and of concern to clinicians.

In 1945, Coventry, Ghormley, and Kernohan published a three part investigation of the intervertebral disc, the second of which dealt with "Changes in the Intervertebral Disc Concomitant with Age." As early as 1951, Carl Hirsch began publishing the results of his extensive investigation into the properties of the intervertebral disc in health and in disease. In 1959, he was aware that the chemical components of the nucleus are protein, polysaccharides, and water. With increasing age, the water content decreases, the protein content increases, while the mucopolysaccharides decrease or remain constant. He recognized the change in the water content of the disc to be due to decrease in its water-binding capacity and suggested that the altered relationship between the protein and the mucopolysaccharide fractions might be responsible. He concluded: "Disc degeneration starts as an avascular necrosis. In the lower lumbar area the discs deteriorate early because of mechanical stress. During certain early periods of degenerative changes a mechanical disorder between the annulus and the posterior longitudinal ligament may cause tiredness and pain. When the disc is completely degenerated and has lost its physical properties, backache disappears." These significant conclusions were followed by the suggestion that if we could find a method by which deterioration could rapidly pass the stage at which mechanical disorder causes pain, we might eliminate backache. He speculated that a chondrolytic enzyme, such as subsequently used by Smith and Brown, might be created and that when injected into the disc space would "cause a connective tissue reaction."



Taylor and Little, among others, have used x-ray fibre diffraction and electron microscope to study the aging of lumbar discs. Dickson, Happey, and Pearson, after differential thermal analysis and chemical analysis have concluded: "There can be little doubt that the large changes (increases) in the ratio of non-collaginous proteins to collagin which we have observed will affect the mechanical properties of the nucleus pulposus and the annulus fibrosus. . . ."

A. van den Hooff, making similar studies, observed "the turgescence of the nucleus pulposus—the inhibition pressure—is lost gradually." He felt that the tendency for the nucleus pulposus to herniate is primarily due to weakening of the imbibition pressure of the nucleus which in turn resulted in changes in hydrostatics so "that with increasing age the annulus is subjected less to traction in the direction of its fibrous component and more to pressure at an angle with this direction." Fig. 2. This view tends to relate: "the solidification of the nucleus pulposus on the one hand and the weakening of the annulus fibrosus on the other," with the latter failing in its primary function; this is, to confine the nucleus within the disc space. Slowly, our understanding of the intervertebral disc space and its confining ligament is increasing.

The diagnosis of discongenic or spondylotic lumbar pain, with or without nerve root compression, in the elderly individual need be determined through the same logical and orderly differentiation one applies to the younger patient, except that neoplasms and degenerative neuropathies should be given greater consideration.

Sciatic pain constitutes the outstanding symptom though low back pain often is severe. In one-quarter of those patients with leg pain, the symptom is experienced on both sides. Symptoms may be of months to years duration. Only a small number of the elderly patients are able to recall what might have been a precipitating traumatic incident. Pain arising from lumbar disc disease is, as a rule, aggravated by standing and walking and alterations of posture. Most patients are made more comfortable by bed rest. Incontinence, urinary or fecal, may be encountered. Paresthesia as formication, tingling, burning, or numbness is seen in those patients who have a peripheral neuropathy in addition to a radicular compression syndrome. In the absence of arterial disease, the occasional patient may complain of symptoms resembling those of intermittent claudication. Weakness of a lower extremity, though evident on examination, is an infrequent complaint of the elderly patient.

Objective findings may include loss of lumbar lordosis, paraspinal tenderness, and muscle spasm with or without scoliosis. In almost all elderly disc patients, there is a marked limitation of motion in the lumbar spine. Laséque's sign is usually positive in those patients with acute sciatic symptoms. When present, paresis or paralysis in the lower leg are of more diagnostic significance in the elderly than abnormal reflexes, unless the reflex change is unilateral and the alteration unequivocal, since the neuropathies more often seen in the elderly can be confusing. Calf, thigh, and/or buttocks atrophy is found on occasions. A poorly circumscribed hypalgesia may be suspected. Anesthesia that follows a classical dermatome pattern is not often demonstrable. Before concluding the patient's complaints are due to lumbar disc disease, the examining physician must have considered: bursitis, psychosomatic disturbances; neurogenic deterioration; arterial occlusive disease; deep thrombophlebitis; infectious processes; and neoplasms, primary and secondary, benign and malignant, in such locations as abdominal viscera, prostate, female pelvis, retroperitoneal, epidermal, spinal cord, cauda-equina, peripheral nerve, or the bone of the spine and pelvis.

Roentgenograms of the lumbar spine must be of excellent quality and include right and left oblique projections and a spot lateral of the lumbosacral articulation in addition to the routine anterior-posterior and lateral views. Special attention is given when studying these films to the possibility of neoplastic changes in bone or soft tissue. The presence or absence of spondylolysis, spondylolisthesis, rheumatoid arthritis, and alterations suggesting Paget's disease are sought for as is encroachment of the spinal canal by developmental narrowing or by osteoarthritic changes which are almost always evident to some degree in older patients. Foraminal encroachment, best seen on the oblique projections, secondary to hypertrophic arthritic changes and the disc space narrowing usually found, should be evaluated in light of clinical symptoms and signs.

If at this point, the surgeon retains doubts as to the diagnosis, before instituting therapy, a

chest film and skeletal survey should be obtained along with routine laboratory studies, supplemented by those pertinent to the patient's age and to the condition suspected. This should, in some instances, include a biochemical scan for tumefaction. The specific tests, in any given instance, must be left to the judgment of the evaluating surgeon.

If, on the other hand, it is the surgeon's considered opinion he is dealing with a lumbar disc syndrome of such a nature that operative intervention is not then indicated, he may find the patient can be satisfactorily managed at home on all or part of a routine such as the following:

Restriction or absolute curtailment of activities.

Rest on a non-sagging bed with or without 20-30 lbs. of pelvic traction.

Heat, preferably moist.

Brace, canvas or steel.

Medications (singly, or in various combinations): analgesics with codeine; soporifics; tranquilizers; muscle relaxants; antiarthritic and anti-inflammatory drugs; and on occasions, hormones and vitamins; but never cortisone.

Out-patient physical therapy:

Moist heat.

Intermittent traction up to 30 lbs.

Massage.

Postural and mild abdominal exercises.

In the elderly patient we use neither spinal manipulation nor a vigorous exercise routine.

If the patient's symptoms are marked, or fail to respond to the above home routine, he is hospitalized. In that event, a chest film and, possibly, a skeletal survey are obtained along with appropriate laboratory studies.

If, after one or two weeks of supervised conservative management, the disc patient has failed to respond adequately, we have resorted to myelography or spinography using up to 12 cc. of Pantopaque. Discograms have been used, usually at one or two of the lower lumbar levels, when the myelographic picture, as it often is in the elderly, is confusing. Electromyographic and chronaxie studies have been obtained for academic purposes but are not used routinely. We have not used the somewhat more esoteric procedures, such as intraosseous vertebral venography, thermography, canalography, peridurography, or discometry. Time may determine that some are procedures the clinician should master.

It is our feeling that unless cineradiograms are made for review by the surgeon that the myelogram, particularly in the elderly, should be done with him in attendance. We consider visualization of the flow of the dye column essential to a proper interpretation of the study in most instances. Correct interpretation of the myelogram and consequently its correlation with the clinical picture is much more difficult in the elderly than in the young. Epstein and others have commented on this problem of correlation. The defects are usually multiple both as to site and side and often fail to correspond to the surgeon's expectation. Blocks, partial and complete, are frequently seen. A most careful and thorough analysis of the flow and subsequently the x-ray films are clearly responsibilities of the surgeon. The upper regions of the spinal canal must be examined to exclude the unexpected. Routinely, manometric determinations are made. The spinal fluid should be observed as to its appearance, and a specimen submitted for cell count, colloidal gold, VDRL, and total protein determiations. The total protein is usually found to be below 50 mg./100 ml. When as high as 100 mg.%, it suggests the presence of pathology other than a disc, unless there is a complete block of the canal by an extruded fragment.

As indicated previously, in the presence of a confusing myelogram, discography may prove to be of assistance. Only suspected levels (usually L4-5 and L5-S1) are examined. On occasion, by virtue of the pain and the dye patterns precipitated, the physician may be able to resolve some of the enigmas encountered. The amount of media which can be injected, like the quantity of saline accepted at surgery by the disc, is unfortunately less meaningful in the elderly since deterioration and fragmentation, as described, is a feature ever present in the aging nucleus.

On admission to the hospital, many, and prior to surgery all, patients are given a thorough medical evaluation and clearance by a capable internist who follows those selected for surgery with the surgeon during the initial postoperative period. Review of the records of 161 of our patients over 50 years of age at the time of surgery has shown that with proper preoperative preparation, good anesthesia, well-planned and well-executed surgery, and adequate postoperative management, this group of surgical patients may be expected to do essentially as well as their younger counterparts.

As a group, these disc patients will be found to be physiologically young for their years which

may account, in part, for their symptoms occurring during advancing years. A capable anesthesiologist who will maintain an adequate airway, a physiological blood pressure, and a proper blood volume throughout the procedure is an absolute prerequisite to surgery. A competent anesthesiologist, if allowed to determine the anesthesia of choice, can permit the surgeon to work with the patient in the prone, the tuck, the lateral, or the supine position if an anterior approach is desired.

As this surgeon has established to his own satisfaction that attempted lumbar fusions add to the surgical risk, complicate and prolong the convalescence, fail to ankylose solidly at all levels in a distressing number of instances, and even when fusing solidly seem to do little to improve the over-all result of lumbar disc surgery as well as contributing to, if not actually causing, future problems at other disc levels, he is of the opinion that the surgeon in a private practice will be well advised to restrict fusions to those patients with an unequivocally unstable low back, such as seen with spondylolisthesis. Rarely will he later conclude that his elderly patient, who has been experiencing increasing spinal stability through the physiological processes concomitant with aging, require a fusion.

The extent of the operative procedure should be limited, if possible, to the symptomatic pathology. Extensive, random explorations are seldom, particularly in the elderly, followed with rewarding results. The best of the surgeon's judgment is essential to success. On the other hand, a thorough exploration of the symptomatic area or areas is essential to success. It is never a problem to control bleeding in a properly executed lumbar disc exploration, although on occasions it may be difficult to control bleeding and to maintain adequate visualization. Control of bleeding can be accomplished with the judicial use of cotton packs, Gelfoam, thrombin, electrical coagulation, and the patient's position. Particular care must be taken when packing with a patty not to displace a herniated fragment up or down the canal. The task of controlling bleeding and exploring is more simple in the case of degenerated, but unruptured though symptomatic, disc.

Visualization of the symptomatic area must be thorough. To this end, bone is removed, as necessary, from the spinous processes, the lamina, and even the facets. In the presence of an extreme compromise of the outlet, as may be encountered in spondylolisthesis and osteoarthritis, the inferior ⅓ to ½ of the pedicle may be removed. The neural outlet must be left adequate so that it no longer compromises the nerve, and to be certain that this has been accomplished, the surgeon must actually visualize laterally as far as the lateral border of the pedicle or be completely satisfied that his probe freely passes laterally on all sides of the nerve. Anything less is apt to prove unsatisfactory. All extruded disc fragments, which are usually smaller than those encountered in the young, are removed. If the disc is not ruptured, but is soft, it is injected with normal saline; and if the space readily accepts more than one ml., removal of the posterior ⅔ of the nucleus is accomplished. The floor of the canal is flattened when indicated.

One of the major complications of surgery to be avoided is perforation of the anterior portion of the annulus with concomitant injury to the abdominal viscera. Damage to the bowel, ureter, and great vessels has been reported. Anteriovenous fistulas, as well as fatal hemorrhages, have followed perforation of the iliac vessels. Sacrifice of nerve roots can precipitate problems in subsequent management, but Reynolds' observation on this is reassuring. Paresis and even paralysis of muscles in the lower extremities, and loss of sphincter control of the bladder or bowel are rare residuals following surgery. Happily, these problems are usually transient. Paralysis of the sacrospinalis muscles due to motor impairment or ischemic necrosis has been observed. Postoperative hematomas complicate and delay healing. Consequently, a special effort should be made to prevent their occurrence. Postoperative disc space infections, though rare, constitute a major complication and may be of dire consequence, especially in the elderly. Open drainage, maintenance of a good blood picture through transfusions as needed, and large doses of appropriate antibiotics are usually rewarded by recovery, but the surgical result is almost always compromised to some extent.

The omission of spinal fusion, as stated, lessens the risk, reduces postoperative morbidity, and permits early ambulation, with or without an accessory support. A brace is not routinely ordered. During the period of hospitalization, the postoperative routine for the older patient may be the same as for a younger patient except added attention is given to the maintenance of

good physiology. To make this problem easier, ambulation on the first or second postoperative day is ordered routinely.

As to a formalized rehabilitation program, none is given. Like Simon, *et al.*, we have recognized it unwise to propose a formal exercise program to the older patient whose articulations are, and probably should remain, less mobile; and whose muscles are more susceptible to catabolic than to anabolic alterations. After discharge from the hospital, patients are encouraged to return to their routine life activities as soon as possible; expanding their activities daily.

Results to be anticipated are very much the same as in any group of surgical disc patients. As a means of communication with our patients who are to be operated on, without exception, we state: "While there is absolutely no guarantee, on the basis of past experience, we hope through surgery to effect approximately an 85% improvement in 85% of our patients." We believe that almost all patients, if not all, who have had disc lesions, with or without surgical treatment, will in the future have some discomfort on occasions. In which event, it is often helpful to the surgeon, and to the patient, to refer back to that preoperative prognostication and to point out that their postoperative discomfort, as a rule, can reasonably be regarded as a part of the 15%, and in most cases, tends to diminish with the passage of time. Reassurance along with medical management as indicated is usually rewarding to the patient and to the surgeon in private practice.

As regards the future: I am most optimistic that the results from medical and surgical management of man's low back pain, which to a great extent is management of the lumbar disc syndrome, will be even better. Most physicians are now aware that the lumbar disc is the weakest link in the anatomical chain of the back, and that it is by far the most common source of low back discomfort; we have a better understanding of the effects of stress and the physiology of aging as related to the disc; and what is even more exciting, we most certainly will have, as soon as the Federal Drug Administration releases it, an additional means of treatment.

As Hirsch anticipated, enzymes have been made available which, when injected directly into the intervertebral disc, alter the complex chemical structure of the disc in such a manner as to rapidly convert a partly degenerated disc into one which is completely degenerated and consequently asymptomatic in many instances.

Beginning in 1963, Smith and Brown reported their results of the use of chymopapain for this purpose. They observed this enzyme had a selective action on the mucopolysaccharide-protein complex of cartilage, but no effect on the collagen of the annulus fibrosus, longitudinal ligament, or dura mater, as well as no effect on the lipid of nerve tissue. Their subsequent reports, like those of more recent investigators with this technique, are most stimulating. The procedure should prove to be simple for the trained surgeon and has been followed by substantial improvement in approximately 75% of the patients so treated. It is recognized that intrathecal installation of the drug will be followed by a fatal hemorrhage as a consequence of dissolution of the small intradural vessels. However, this hazard does not constitute a contraindication to the use of the drug, but simply implies that like thousands of other surgical and medical practices, it must be performed correctly by the competent. Professor Roaf of Liverpool has used the enzyme pronase for this purpose.

It appears certain, the Federal Drug Administration permitting, that at some future date the clinician will have another valuable modality for management of the lower lumbar disc syndrome that would seem to fit quite nicely between non-surgical and surgical treatment. The thought of eliminating the pressure caused by a degenerated, symptomatic disc without experiencing residual perineural adhesions, which may complicate posterior surgical excisions, is, for the surgeon, an exhilarating consideration.

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The Mentally Ill Offender In Arkansas

R. E. Walters, M.D., and George W. Jackson, M.D.*

I. INTRODUCTION:

If there are two achievements that characterize the modern trend in mental hospital care since the advent of psychotropic drugs, it would be the *open door* policy and more fluid *admission and discharge* policies. In 1959, as the ancient Kirkbride structures of the Arkansas State Hospital were in the last stages of repair, construction was begun on a new building at the command of the state legislature to house those patients committed from criminal courts who were charged with felonies and found to be mentally incompetent. Into Rogers Hall were gathered some one hundred inmates for custodial confinement. Next year will mark the tenth anniversary of the building, and the third year of a hospital improvement project sponsored by the National Institute of Mental Health. Since the last published report of this service by Dr. Robert C. Carnahan in a 1959 volume of this Journal, some changes have occurred which make a progress report to the physicians of Arkansas of interest.

Dr. Seymour Halleck of Wisconsin has provided a fitting theory model of psychotic criminal behavior which is based on a progressive loss of *respect,* loss of *responsibility* and loss of *reality* toward the environment, all resulting from a chronic failure in achieving basic gratifications. Taking as a working hypothesis that this chain of events is reversible, our staff chose a design of the treatment program to assist the patient in learning ways of achieving gratification for his basic needs through a graduated series of experiences aimed at: (1) Development of sound reality measurement, (2) Acceptance of responsibility for one's life circumstances, and (3) Moulding a new sense of respect for himself and his community.

Some of the features of this approach are as follows:

1. Learning occurs more solidly when one has a choice of alternatives rather than being coerced by force into a particular mold of behavior.

2. Learning occurs most rapidly when reinforced with rewards and peer approval, with punishment or threat of punishment kept to a minimum.

3. Learning proceeds better from focusing on consequences of behavior rather than analyzing motives for one's past behavior.

4. One moves toward new discoveries in accelerated speed as they contribute to a more acceptable self image.

Just how the above principles are applied, requires a somewhat detailed description of the three phases of the behavior modification program at Rogers Hall.

II. PHASE I—REALITY:

All patients retained for treatment after evaluation for competency are either psychotic or mentally defective to a degree of incompetency under the McNaughton Rule. They have committed criminal acts in which they were unable to distinguish reality from internal delusional system or were unable to appreciate the nature and quality of their act. We receive also other types of referrals from open units of the hospital —patients who constantly elope or are aggressively destructive toward the treatment process.

On the average, each patient spends from sixty to ninety days in the first phase until he is thoroughly habituated to a constructive behavioral routine. His geographic dimensions and interpersonal contacts are such that being relieved of encountering the entire open world and all its people, he is able to make use of simpler basic orientation procedures again, with frequent reminders of reality facts such as names, dates and building activities.

The day is divided into convenient segments of activity periods adhered to with diligence to further assist in the patient's mastery of his environment. His orientation procedure will have prepared him a schedule of assignments to academic therapy, occupational therapy, recreation, and ward housekeeping. There are two of these activity periods before lunch and two after lunch, five days a week with weekends off.

What makes the reality structuring useful to the patient is his immediate opportunity to be rewarded for his performance of reality tasks. A token system of economy is substituted for

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money. Each meal costs two tokens. Each canteen order requires a token and a pack of cigarettes cost a token. This adds up to a total of about eight tokens per day for the average patient's needs.

To earn tokens, a set of constructive behaviors are scheduled which the person has a choice of attending. He may further exercise freedom in the selection of the quality of his participation; for example, his performance in each of these activities is graded as (O) indicating he came and participated, a (—) meaning he came and was disruptive to others participation, or a (+) signifying a special effort in cooperation in the group process. A minus results in the loss of a token. A zero adds one token, and a plus brings the participant two tokens for that activity. This reward reinforces favorable behavior and extinguishes unfavorable behavior.

We know when a man is ready to move to the middle phase when he operates consistently in a natural helpful manner without concern for earning tokens. This tells us that he has internalized his learning and is no longer compulsive or reactionary as far as observable behavior is concerned.

III. PHASE II—RESPONSIBILITY:

Once the patient has shown his accessibility and comfort in group functioning, all sorts of choices begin to emerge such as choice of clothing, larger locker for personal items, choice of activities, including phone calls, visiting on grounds, working in hospital industry half days, and attending entertainment functions off the grounds.

The token economy is dropped at this point and in its place are the group sanctions and rules with rewards and punishments regulated in great part by the patient government. As in the successful conditioning of animals, we encourage the patient council to make little use of direct punishment such as restriction of privileges, but rather to use person to person persuasion with the strong implication that other kinds of behavior will earn him the reward of approval from his fellows. The patient council members can further assist in the treatment function by serving as models of spontaneous behavior in which the individual shows evidence of having "the center of gravity" for his life inside himself.

There is in the program also a six month cycle of discussions of character building topics such as:

1. Use and misuse of mental mechanisms.
2. Human sexual development.
3. Marriage and family dynamics.
4. Banking and savings.
5. Grooming and manners.
6. Transportation and travel.
7. Prejudice.
8. City organization and police functions.
9. Religious experience.
10. Social rights and obligations.

These are but a few of the twenty-six topics covered in the once a week series called School for Living. This is in addition to the two sessions of group psychotherapy each week.

The ultimate goal of the middle phase of treatment is to develop in each patient a sense of responsibility. When a man can come to understand the significance of his own choices in his past circumstances, especially those which brought him to treatment, he is then ready to believe he has some choices for his future. The climax of his treatment in the middle phase comes when he has discussed, justified and received approval for his future plans from his own therapy group. A personal conference with the section chief determines the date for staffing with the Assistant Superintendent, after which negotiations with the court begin for the release of charges. He is now ready to move to the Exit Wing to Phase III.

IV. PHASE III—RESPECT:

The hospital is obliged in the beginning of the Exit Phase to provide direct assistance in reestablishing family ties, providing opportunities to earn money, making social contacts and advising on management of savings.

V. SUMMARY:

In looking back to determine what features of this program are uniquely operating to produce change in behavior patterns, we have selected out the following.

1. Focusing upon the primal issue of survival by requiring tokens to be earned for meals is a forcible stimulus to participation in constructive behaviors.

2. Eliminating all avenues of defensive escape for patients and staff alike, by identifying and resolving all issues within the group, is like a continuous psychotherapeutic marathon. Each person must find successful alterna-

tive to emotional subterfuge and violence.

3. Offering the offender a variety of factual discoveries about himself and his society, and an opportunity to assume responsibility for his future opens up a wider range of behavioral patterns, an image of himself free from the threatening restrictions that led to crime as a means of breaking the frustrations.

After a year or more of this learning experience transpires, does the additional time, effort and cost pay dividends in permanently altered behavior? It is too early for definitive answers, but we do have some early statistics. First of all, no one discharged from the service in the three years of the project has committed a crime coming to our attention. The return rate of 75 discharged patients for 1967 is 8% as of this date compared with 25% for the hospital as a whole. Assault and injury reports from Rogers Hall contributed 50% of all such incidents for the hospital in 1966, down to 25% in 1967. The patient census of the service was reduced from 95 to 45 patients during the past twelve month period. Six of the patients released last year represented 105 years of hospitalization.

Finally, many of the employees on this service have experienced a near evangelistic discovery of a new way of relating to others in which illness, weakness and unlovingness are neither denied nor allowed to come between them. Our hope is that we can preserve the atmosphere of mutual trust in which no problem is beyond the possibility of solution within the group.

Posterior Fossa Subarachnoid Cyst Due to Choroid Plexus Papilloma

I. P. Cast and M. A. Falconer (Guy's Maudsley Neurosurgical Unit, London)
Brit Med J 4:682-686 (Dec 14) 1968

In a case presenting with features of a posterior fossa tumor, the pathology became evident only at operation when a subarachnoid cyst containing a choroid plexus papilloma related to the foramen of luschka was encountered. The clinical picture of these rare lesions varies, depending upon site and degree of malignancy, and upon the sex and age of the patient. Those occurring in the fourth ventricle can produce raised intracranial pressure, simulate a cerebello-pontine angle tumor, compress the medulla, or invaginate the cerebellum. If an arachnoid cyst is encountered in the cerebello-pontine angle, the possibility of a choroid plexus papilloma should be remembered.

Ten Years' Experience of Steroid Assays in the Management of Breast Cancer

H. Atkins et al (Guy's Hosp Medical School, London)
Lancet 2:1255-1260 (Dec 14) 1968

The usefulness of the discriminant function for the prediction of response to adrenalectomy of hypophysectomy has been investigated in 206 patients over the past ten years. In general, patients with negative discriminants have a lower remission-rate than those with positive discriminants but factors such as the free period and menopausal status modify the predictive value of the discriminant. Patients without a previous value mastectomy do not respond as well to adrenalectomy as they do to hypophysectomy. The combination of these clinical factors with the discriminant function affords a means of identifying a group of patients who are not responsive to endocrine ablation.

STUDIES FROM
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THE DEPARTMENT OF
OBSTETRICS AND GYNECOLOGY

Lupus Erythematosus In Pregnancy

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For years lupus erythematosus (LE) was considered to be only a dermatologic disease despite the fact that constitutional manifestations of the process were described as early as 1872. During the past decade however, LE has come into the spotlight as a model for the study of the spectrum of diseases lumped into the category autoimmune connective tissue disorders. Because of the improved treatment of LE with adrenal cortico-steroids which prolong life, we can now observe these patients for long periods and subject the disease process to extensive study. An interesting characteristic of LE concerning its incidence is that it occurs predominantly in women and is more frequent during the child bearing age. Also, a familial tendency has been suggested. For this reason investigators first became and have remained interested in LE and a possible association with pregnancy. The purpose of this paper is to present information concerning the pathology and clinical manifestations of the disease, then to review the literature on LE as related to pregnancy and child bearing, and finally to attempt to make some conclusions based on the facts that have been reported.

PATHOLOGY

The basic pathology consists of an alteration between the normal relationship of the fibrils and cellular elements and the ground substance. This is called fibrinoid change and will usually be accompanied by cellular infiltration, another non-specific change, either in the walls of the blood vessels or elsewhere. Among the pathological changes are (1) the verrucous endocarditis of Libman and Sacks, (2) the segmental thickening of the basement membrane of the glomerular tuft ("wire-loop" lesion), and (3) periarterial concentric fibrosis of the spleen ("onion-skin" lesion). "Hematoxylin bodies" constitute the most characteristic histopathological findings in systemic lupus erythematosus (SLE); they are homogenous purple masses of altered nuclear material which have been shown to be morphologically and histochemically identical with the inclusion body of the LE cell. Surprisingly, they are not found with great frequency in cases with an aboundance of LE cells.[1] Lymph nodes in SLE will reveal cellular proliferation and focal necrosis in the sinuses contrasting with rheumatoid arthritis which will show a follicular hyperplasia. There may be a mild fibrinous synovitis with slight inflammatory change.

CLINICAL FEATURES

The illness may begin acutely but in most cases has an insidious onset characterized by early constitutional signs and symptoms such as fever, weakness, fatigue, or weight loss. For the most part, this paper will be concerned with SLE as opposed to discoid LE. We will only describe the clinical signs and symptoms which result from the multisystem involvement of SLE. This disease should be suspected in patients with fever of unknown origin, unexplained anemia, weight loss, malaise, or arthralgia.

Ninety per cent of the patients will have

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arthralgia and in 33 per cent this will be the presenting picture. The common form is severe joint pain with little or no objective evidence of arthritis. Some patients will present a picture resembling rheumatoid arthritis with proximal interphalangeal and metacarpophalangeal involvement of the hands, wrists, elbows, knees, and ankles. Contractures or ankylosis is very rare.

Cutaneous lesions are found in 80 to 90 per cent of patients and are usually erythematous, symmetrically located on face, neck, or extremities. The rash may be located on the palmar surfaces. The classical butterfly rash is found only in a minority of patients. Other skin lesions which may be seen in SLE are purpura, urticaria or angioneurotic edema, hyperpigmentation, vitiligo, and alopecia.

Half of the patients have local or generalized lymph node enlargement. About 20 per cent will have a palpable spleen and close to 30 per cent will have hepatomegaly, but usually this will be the result of congestive changes. There are no specific liver lesions in SLE and jaundice is rare.

Pleurisy and pericarditis are seen in over half the patients. These may occur in association with bouts of pneumonitis or heart failure due to a pancarditis. However, the valvular lesions are rarely a cause of functional disturbances. The heart and lung lesions tend to occur together. Raynaud's phenomenon is not uncommon and may be a presenting symptom.

Lupus nephritis, unfortunately, is a very frequent and serious feature of SLE. It begins as a focal glomerulitis with urinalysis revealing only white cells, a few red cell casts, or mild proteinuria. It may pass through a nephrotic stage but usually terminates in subacute glomerulonephritis with uremia and hypertension.

About 30 per cent of the patients will have neurotic or psychotic behavior, usually in the form of paranoia or depression. Peripheral neuritis and seizures may also be seen. Central nervous system involvement is a sign of highly active disease and denotes a very poor prognosis.

Laboratory findings are also of significance in diagnosis of SLE. Eighty per cent will have a mild normochromic, normocytic anemia. Thrombocytopenia and leukopenia may also be seen. These are a result of bone marrow depression and rarely secondary to hypersplenism. The erythrocyte sedimentation rate is elevated and there is an increase in gamma and alpha^2 globulin. Other evidences of plasma protein dysfunction include circulating anticoagulant, positive Coomb's test, cryoglobulinemia, lowered serum complement activity, presence of rheumatoid factor in a third, and false positive serology for syphilis in up to 20 per cent of the cases. However, the most important laboratory tool in SLE is the LE cell phenomenon which greatly strengthens the diagnosis in the usual atypical case. The LE cell is a polymorphonuclear leukocyte filled with and enlarged by an inclusion body, which is a globular mass of homogeneous material appearing like ground glass and staining red-purple with Wright's stain. This same material is found extracellularly as free rosettes, which are globs surrounded by, but not engulfed by neutrophils. Factors necessary for LE cell formation are (1) serum factor acting on (2) nuclei and (3) active phagocytosis. Only the serum factor must come from the patient with SLE; this factor resides in the gamma globulin fraction and has an affinity for nucleoprotein. Other antinuclear factors are antiDNA and antinucleoprotein factors. Anywhere from 75 to 90 per cent of patients with SLE will have a positive LE test. It should be stressed that the LE cell is not specific for SLE nor does a negative LE test by any means rule out SLE.

LUPUS ERYTHEMATOSUS IN PREGNANCY

Several different areas must necessarily be explored here: the effect of pregnancy on SLE, the effect of SLE on pregnancy with attention centered around fertility, maternal mortality and morbidity, spontaneous abortion, prematurity and "fetal wastage," and finally neonatal LE.

Concerning the effect of pregnancy on SLE it is best perhaps to look at some studies that have been done over the last 15 years. Dziubinski and his group made the following statement: "In the presteroid era, exacerbations and remissions occurred with sufficient frequency in the post partum period to be considered the rule, with the disease resuming its prepregnancy status within 2 months."[2] They classified patients with SLE as acute if they had a threatening complication or if they were significantly debilitated, or subacute if they ran a more protracted course and were not debilitated. In 13 acute LE patients they had 18 pregnancies, 14 showing no change during gestation, 4 showing remissions during pregnancy and no exacerbations antepartum. There were four post partum exacer-

bations. In 19 patients with subacute LE there were 30 pregnancies, 25 showing no change antepartum, four antepartum remissions and three post partum exacerbations. Friedman and Rutherford in 1956 being aware that the progression of a disease process is not always clearly reflected by clinically observable signs and symptoms, which is all the investigator has, ran a series of 42 pregnancies associated with SLE.[3] Their results were as follows: eight had onset of SLE immediately post partum; 18 exacerbations occurred during gestation, 10 in first trimester, seven in the second, and one in the third and all 18 again post partum. Sixteen had remissions—seven in the first trimester, four in the second, three in the third, and two post partum. The results show remissions and exacerbations occurring with approximately equal frequency during gestation but with exacerbation being the rule post partum, which bears out Dziubinski's study. Donaldson and de Alvarez ran a large series of 134 patients with LE associated with 191 pregnancies.[4] Their results showed that during pregnancy the LE process remained clinically unchanged in 60 per cent of pregnancies and that in the total group twice as many patients improved as were aggravated during pregnancy. Hench was one of the first to note that rheumatoid arthritis underwent spontaneous remissions during pregnancy but that recurrence of symptoms followed shortly after delivery.[5] This led to the concept that, most likely, endocrine hypertrophy during pregnancy with increased plasma cortisol and a chorionic adrenocorticotropic hormone, which Peters found in 1960,[6] was responsible for the remissions of some cases of SLE and rheumatoid arthritis during pregnancy. In contrast to Donaldson's group, Mund found that in his study pregnancy adversely affected SLE and that exacerbations occurred more in the last trimester and within two weeks post partum.[7] Cox in a recent review of the literature,[8] summarizes the data by concluding that because SLE is naturally a disease characterized by exacerbations and remissions, there is no conclusive support that pregnancy affects the course of SLE in any way. I agree with this during gestation, but the evidence seems to tell one to beware the post partum period in these women.

On the other hand, the evidence seems rather conclusive that SLE does have an adverse affect on pregnancy. Since pregnancy is an encompassing term, several areas will be examined. First, there has long been speculation of SLE causing infertility. Friedman and Rutherford[3] ran a series on 188 women with SLE and obtained a sterility rate of 20.8 per cent, which is borderline high. However, Cox[8] and many others have repeatedly shown that infertility rates are no higher in patients with SLE than in normal women.

There is also apparently an increase in maternal complications, mainly toxemia, in these women. In Donaldson's study,[4] 11 per cent of the women with acute SLE died of mainly toxemia but three died following therapeutic abortion, one after spontaneous abortion, and three after severe bouts of nephritis. He reports that 25 per cent of the total series developed toxemia and 50 per cent of those under the classification chronic LE developed toxemia. He says that often the only way to differentiate SLE from preeclampsia is by renal biopsy. Turner reviewed the literature and reported maternal mortality rates ranging from 20 to 60 per cent in women with acute LE.[9]

Perhaps the most significant effect of SLE on pregnancy is on the fetus. Of Dziubinski's 48 pregnant SLE cases, there were five spontaneous abortions and two stillborns with a perinatal mortality rate of 4.7 per cent, compared to the normal of 3.8 per cent in 1961.[4] Friedman and Rutherford[3] in their series of 42 pregnancies, showed 15.8 per cent premature births and 23.7 per cent spontaneous abortion. Turner[9] reported 30 to 50 per cent fetal mortality rate in those babies of mothers with SLE who were not treated with steroids. Donaldson and de Alvarez[4] found spontaneous abortion in 10 per cent and stillbirth in 12 per cent, but only one neonatal death. They found a high "fetal wastage" (15 to 25 per cent) when SLE is associated with toxemia and renal disease. They explain that the fetal death and prematurity are the result of severe vascular disease resulting in placental insufficiency. Much more similar evidence could be presented, but it would be repetitious since it all clearly demonstrates increased incidence of prematurity and spontaneous abortion. I believe the evidence is inconclusive for an increase in perinatal mortality.

It seems appropriate here to mention the studied effects of steroid therapy in these women.

Fraser and Fainstat produced cleft palate and other anomalies in the young of pregnant mice treated with cortisone during gestation.[10] However, this has not been seen in humans. Ricks gave high doses of steroids to five pregnant women with SLE who gave birth to eight infants.[11] These women were treated from the first trimester. None of the babies showed signs of adrenal failure and there was no maternal death. He treated exacerbations by tremendously increasing the dosage of cortisone—one received over 1200 mg. on each of three days. Formerly, salt retention was a feared complication of steroid therapy especially in large doses; this was thought responsible for precipitating toxemia in the third trimester. However, today with lower doses of more potent steroids, this complication is reduced to an almost negligible degree. Donaldson and de Alvarez[4] recommend starting steroids very early in the pregnancy with initial large doses, reducing the dose as symptoms and signs subside. Antimalarial drugs, such as chloroquine, may be used as a supplement. During labor and delivery, steroids should be maintained at a high level of about 200 mg. for two days. One must not overlook the very real possibility of maternal adrenal suppression despite the seemingly uncomplicated picture of steroid therapy as presented above.

Steroids are the mainstay of therapy in SLE especially in pregnancy but another therapeutic tool deserves mention. Therapeutic abortion for the most part must be condemned, despite the fact that Turner[9] advocates its use in acutely progressive cases. Others have shown that, in no case, is therapeutic abortion indicated. For example, Donaldson and de Alvarez[4] observed that out of 12 therapeutic abortions, only one patient's condition was improved. The other 11 either showed no change or had an acute exacerbation—3 of these women died in fact.

One very interesting area remains to be explored: that of congenital LE. The question that will arise here is whether the antinuclear antibody of LE is a contributor to the disease process or whether it is merely passive effect of the disease. Beck and his group ran a very interesting study measuring antinuclear antibody in the sera of three pregnant women with SLE.[12] They also measured the baby's sera at birth and the following was noted. In each case, the antibody was a 7s globulin which we know freely passes the placental barrier. The titer of antibody in each baby was the same as that of his mother yet all three babies were healthy and showed no evidence of SLE on follow-up. Serial studies showed that the half life of these antibodies is similar to that of tetanus antitoxin which had no tissue antigen to react with. This suggests that for some reason the LE antibodies were not reacting with the babies' nucleohistone which is their normal antigen. Beck says perhaps a damaged cell wall is required for the antibody to play an active role in the disease. Bridge and Foley showed the same thing in 1954 and concluded the LE factor is only a passive phenomena in SLE.[13] Many others have observed high LE factor titers in newborns of mothers with SLE and all six have observed that the titer disappeared by four months. However, there are cases of congenital LE in the literature. Nice in New Orleans observed the unique case of an infant born with signs of SLE despite a negative history for collagen disease from both parents.[14] LE factor was present in the baby's serum. Jackson reported the third case of discoid LE in a newborn of a mother with SLE but his case was the first of the three to demonstrate a positive LE test on the baby.[15] None of these three mothers received steroids during pregnancy.

CONCLUSIONS

Obviously, the literature is extremely conflicting. What then can we conclude about this problem? I think the following can be said about SLE and pregnancy: (1) Probably during gestation one cannot predict whether pregnancy will cause an adverse or remissive type effect on the course of SLE. The evidence shows no definite effect of pregnancy on this disease during gestation. (2) The immediate post partum and post abortal stages are very crucial periods for patients with SLE. These women do not tolerate stress or trauma well at all. (3) SLE exerts a definite deleterious effect on pregnancy with increased rates of spontaneous abortion and premature labor; also there is an increased incidence of toxemia in the mother. (4) Steroids are essential for proper management. (5) Therapeutic abortion has no place in treating these women. (6) SLE may be transferred to the fetus but more than transference of antinuclear antibody (LE factor) is required to produce disease. Dr. W. K. Lamb, in a discussion of Donaldson's paper,[4] and others, concludes that obstetricians should

accept certain exact precepts when dealing with this subject. They are as follows: (1) All patients with SLE should be warned of the hazards involved with pregnancy. (2) All patients diagnosed as pre-eclamptic should be checked for SLE. (3) Therapeutic abortion should not be resorted to in patients with SLE. (4) All patients with false positive serological tests for syphilis should be checked for SLE. (5) The obstetrician must remember that present studies indicate a familial tendency in the collagen diseases and, consequently, this factor in the obstetric history becomes of vital significance. A simple office technique may determine a patient's status. (6) All patients with SLE associated with pregnancy present a definite hazard from the viewpoint of hemorrhage; thus prepare for this complication in advance. (7) The incidence of post partum psychosis associated with SLE is high and should be carefully watched for. (8) Finally, it must be re-emphasized that the treatment with corticosteroids offers certain hazards.

SUMMARY

A brief introduction is followed by a review of the pathology and clinical aspects of SLE. The disease during pregnancy was discussed in terms of presenting the available literature as it pertains to the effects of pregnancy on SLE and the effects of SLE on pregnancy. Neonatal LE was briefly discussed, as was the current concept of therapy in SLE associated with pregnancy. Finally, I attempted to draw some useful conclusions from the data presented.

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Salt Loading in Renal Aldosteronism Before and After Nephrectomy

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Salt and water metabolism was studied in a patient with aldosteronism of renal origin before and after unilateral nephrectomy. Histological examination of the nonfunctioning small right kidney with arterial occlusion revealed extreme hyperplasia and hypergranularity of the juxtaglomerular apparatuses. The clinical syndrome which appeared to be primary rather than renal aldosteronism ceased following nephrectomy. The rate of excretion of sodium, chloride, and water in response to intravenous hypertonic saline load excessively increased before nephrectomy and returned to nearly normal after operation. Renal function studies suggested the responsibility of proximal tubular mechanisms for increased elimination of sodium load.

SURGERY at the UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE*

*Under the direction of Gilbert Campbell, M.D., Professor of Surgery.

Surgery For Congenital Aortic Stenosis

G. Doyne Williams, M.D., and Gilbert S. Campbell, M.D.

Congenital aortic stenosis accounts for approximately 3 per cent of all cases of congenital surgical heart disease.[1,2,3] An earlier documented survival of over 60 years for the group as a whole probably has led to an overly conservative approach in the treatment of these patients.[4] Nadas has compiled a group of 306 patients with congenital aortic stenosis in which 7.5 per cent died suddenly and unexpectedly at an average age of 10 years.[5] Thus it becomes imperative to seek out factors common to patients with lesions which have progressed in severity to serve as guidelines in advising management.

The problem has been further componded by the demonstration of three anatomically different types of left ventricular outflow obstruction (supravalvular, valvular, and subvalvular), all with somewhat different clinical courses (Figure 1).

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The presence or absence of the commonly associated symptoms of chest pain, fatigue and syncope can only be partially helpful as cardiac catheterization has demonstrated severe left ventricular to aortic gradients in asymptomatic patients. One obviously hesitates to recommend cardiac catheterization for every patient with a systolic ejection type murmur in the aortic area, but who then should be catheterized?

Nadas feels that the electrocardiogram presently offers the best early hint regarding the severity of the lesion and advises catheterization studies in all patients exhibiting EKG evidence of left ventricular strain or hypertrophy. Patients with these EKG findings early in the course of their disease more commonly succumbed in his series.[5] Mild symptoms of dyspnea, chest pain, and syncope in combination with EKG changes flash a still stronger warning and cardiac catheterization should be performed in these patients.

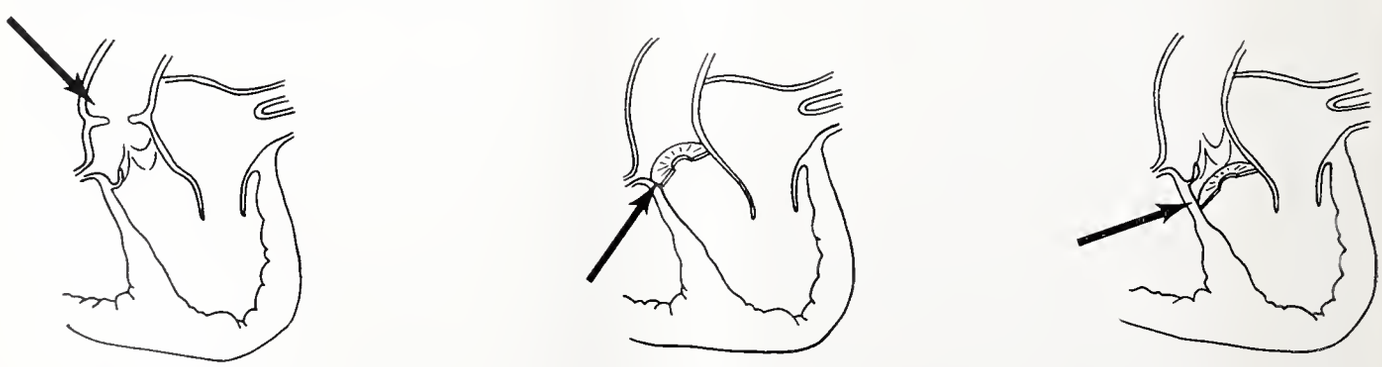

Figure 1.
Levels of left ventricular outflow obstruction.

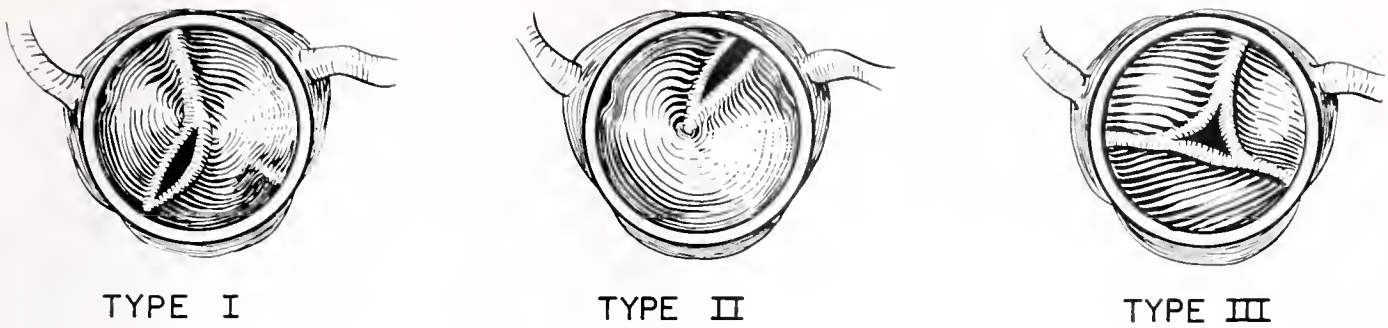

Figure 2.
Types of valvular stenosis.

Some authors recommend cardiac catheterization and angiography for every patient with ausculatory findings suggestive of aortic stenosis to avoid missing the occasional patient without symptoms or EKG changes who has a large gradient.[6]

We prefer to individualize the cases at the University of Arkansas Medical Center and reserve catheterization studies for those exhibiting EKG changes, symptoms, or both.[7] There have been no unexpected deaths in our patients and no significant gradients have been demonstrated at catheterization in the few asymptomatic patients with normal electrocardiograms undergoing this study for other lesions. It is generally agreed that patients with left ventricular to aortic gradients of approximately 50 mm. Hg. and over should be referred for surgical correction. Merendino has shown that the left ventricular to aortic gradient should be calculated on the mean systolic ejection gradient rather than the peak systolic ejection gradient as the former more accurately reflects the actual valve orifice.[8]

Anatomy and Surgery

Congenital left ventricular outflow obstructions can occur above, below, or at the aortic valve level. Approximately one-half of the cases will have obstruction at the valvular level and the three most common forms of valvular stenosis are shown in Figure 2. Type I occurs most frequently and the stenosis can be improved surgically by cutting the defined but fused commissure to the aortic wall. This produces an essentially bifid valve with minimal insufficiency. One cannot attempt to cut the third commissure in the undefined area as gross incompetence will result. Type III, while rare, is amenable to almost complete relief of stenosis by cutting all three defined but adherent commissures out to the aortic wall. The Type II remains a surgical enigma. Except for the somewhat eccentrically placed orifice, there are no other defined commissures and any attempt to open the valve by cutting in an undefined area creates unsupported leaflets with gross valvular incompetence. One can only hope to support a Type II stenosis medically until the patient is large enough to accept an aortic valve prosthesis.

The next most common variety of outflow obstruction is the discrete subvalvular membrane (Figure 1). The lesion is easily exposed via a hockey stick incision in the aortic root. The subvalvular diaphragm is exposed and excised by retracting the aortic valve leaflets. Results are commonly excellent for this relatively simple technical problem.

Supravalvular aortic stenosis can be visualized as a coarctation just distal to the aortic valve (Figure 1). When they occur at some distance from the valve, excision of the segment with reanastomosis while on cardiopulmonary bypass can be done in a manner similar to the more common distal coarctations. However, the majority will be in close proximity to the valve and most recommend incising the constricted area in the region of the non-coronary cusp with insertion of an elliptical prosthetic patch to increase luminal diameter. These techniques for repair of supra-aortic, aortic and discrete subvalvular stenosis, have become essentially standardized in the past few years.[9,10]

A fourth (and fortunately uncommon) variety of aortic stenosis presents as hypertrophied muscle in the left ventricular outflow tract with varying degrees of aortic valvular stenosis and hypoplasia of the annulus and ascending aorta, the so-called "tunnel" syndrome. To date no universally effective surgical technique exists for this problem. Morrow has reported good surgical

results in well defined idiopathic hypertrophic subvalvular aortic stenosis, but the congenital variety may be an entirely different disease.[11] Cooley recommends resection of the muscle mass from the right side via a right ventriculotomy.[12] Kirklin recommends excision of the muscle mass via a left ventriculotomy[13] and Lillehei via the transatrial approach.[14] Obviously with so many approaches to the same problem all must leave something to be desired. In a recent communication from the National Institutes of Health, Morrow reported three tunnel outflow patients with reduction of gradients from 150 mm. Hg. preop to approximately 35 mm. Hg. postop.[15] A portion of the hypertrophied muscle was resected via an incision in the aortic root in the same manner as is done for the more common idiopathic hypertrophic subvalvular aortic stenosis. To date this is probably the most effective and straightforward technique.

Clinical Material and Discussion

Fifteen cases of congenital aortic stenosis and one case of idiopathic hypertrophic subvalvular aortic stenosis have been operated upon at the University of Arkansas Medical Center. All cases had EKG evidence of left ventricular strain and hypertrophy and some or all of the symptoms of fatigue, chest pain and syncope. Follow-up on all cases has been maintained with an early and late mortality of 2 patients or 13 per cent. This figure compares favorably with other similar reported series. Our patients ranged in age from 3½ to 17 years with an average age of 9½ years. Eleven of the patients had left heart catheterization with left ventricular to aortic gradients ranging from 40 to 96 mm. Hg. with an average gradient of 68 mm. Hg. The anatomical variations in this series are listed in Table I.

TABLE I. TYPES OF STENOSIS

Valvular	9
Discrete subvalvular	2
Supravalvular	2
Idiopathic hypertrophic subvalvular stenosis	1
Combined valvular + subvalvular (? tunnel)	1
Total	15

Seven of the nine valvular stenoses were of the common Type I variety (see Figure 2). The remaining two cases were of the Type II and III variety. Both deaths occurred in the valvular stenosis group.

One fatality followed an uneventful valvulotomy of a Type I stenosis on cardiopulmonary bypass. The patient failed to regain consciousness postoperatively and expired several hours later. Cerebral air embolism via the aortotomy was the postulated cause of death.

The second death occurred in a 5-year-old patient with severe aortic valvular stenosis (left ventricular to aortic gradient of 96 mm. Hg.) of the Type II variety. The patient had become very symptomatic with progressive cardiac enlargement on x-ray. At surgery an attempt was made to relieve the stenosis without creating too much insufficiency but the patient expired in the early postoperative period of low output secondary to marked aortic insufficiency. He was too small for any of the prosthetic aortic valves, and this is obviously a case one would prefer to have supported medically until the patient was large enough for a prosthetic aortic valve. Progression of heart failure unfortunately did not permit waiting.

The two patients listed as discrete subvalvular stenosis both had well defined subvalvular membranes which were easily excised with no residual gradient.

Two cases of supravalvular stenosis were repaired by longitudinal incision across the stenosis and insertion of an elliptical Teflon gusset as previously described.

The one case of idiopathic hypertrophic subvalvular aortic stenosis was relieved with resection of a narrow portion of the stenotic muscle via an aortic root incision after the technique of Morrow.[11]

The patient with the so-called tunnel defect has been a problem. His aortic valvular stenosis was corrected on cardiopulmonary bypass two years ago with no measurable residual gradient at that time although some subvalvular muscular prominence was noted at operation. He since developed marked cardiac enlargement with a left ventricular to aortic gradient of 180 mm. Hg. Reoperation on March 4, 1969, revealed a tight fibromuscular subvalvular stenosis which was incised and dilated with a reduction in gradient from 180 to 40 mm. Hg. He is currently doing well.

Summary and Conclusions

Fifteen cases of congenital aortic stenosis have been repaired with cardiopulmonary bypass at the University of Arkansas Medical Center with a total mortality of 13 per cent.

The clinical and anatomical features of congenital aortic stenosis and current surgical management are discussed. All patients with ausculatory findings suggestive of aortic stenosis who have symptoms of fatigue, chest pain or syncope and/or EKG evidence of left ventricular strain and hypertrophy should be further studied with cardiac catheterization. Patients with left ventricular to aortic gradients of 50 mm. Hg. or over should be considered for surgical repair.

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Retinal and Uveal Inflammation in Monkeys Following Inoculation With Homologous Retinal Antigen

L. von Sallmann et al (National Institute of Neurological Diseases and Blindness, Bethesda, Md)

Arch Ophthal 81:374-382 (March) 1969

Young adult rhesus monkeys were inoculated at one session with homologous or bovine retina emulsified in Freund's complete adjuvant. Additional monkeys were sensitized with homologous choroid plexus and guinea pig kidney. All animals injected with homologous retina developed signs of intraocular inflammation in contrast to entirely negative results obtained with the use of other antigens. The histopathological changes consisted of uveitis of varying extent and severity and periphlebitic lesions of the retina which, in the majority of animals, did not appear to be related to the focal choroidal inflammation.

Results of Correction of Tetralogy of Fallot in Children Under Four Years of Age

R. H. Burnell et al (Dept of Pediatrics, Univ of Oregon Medical School, Portland)

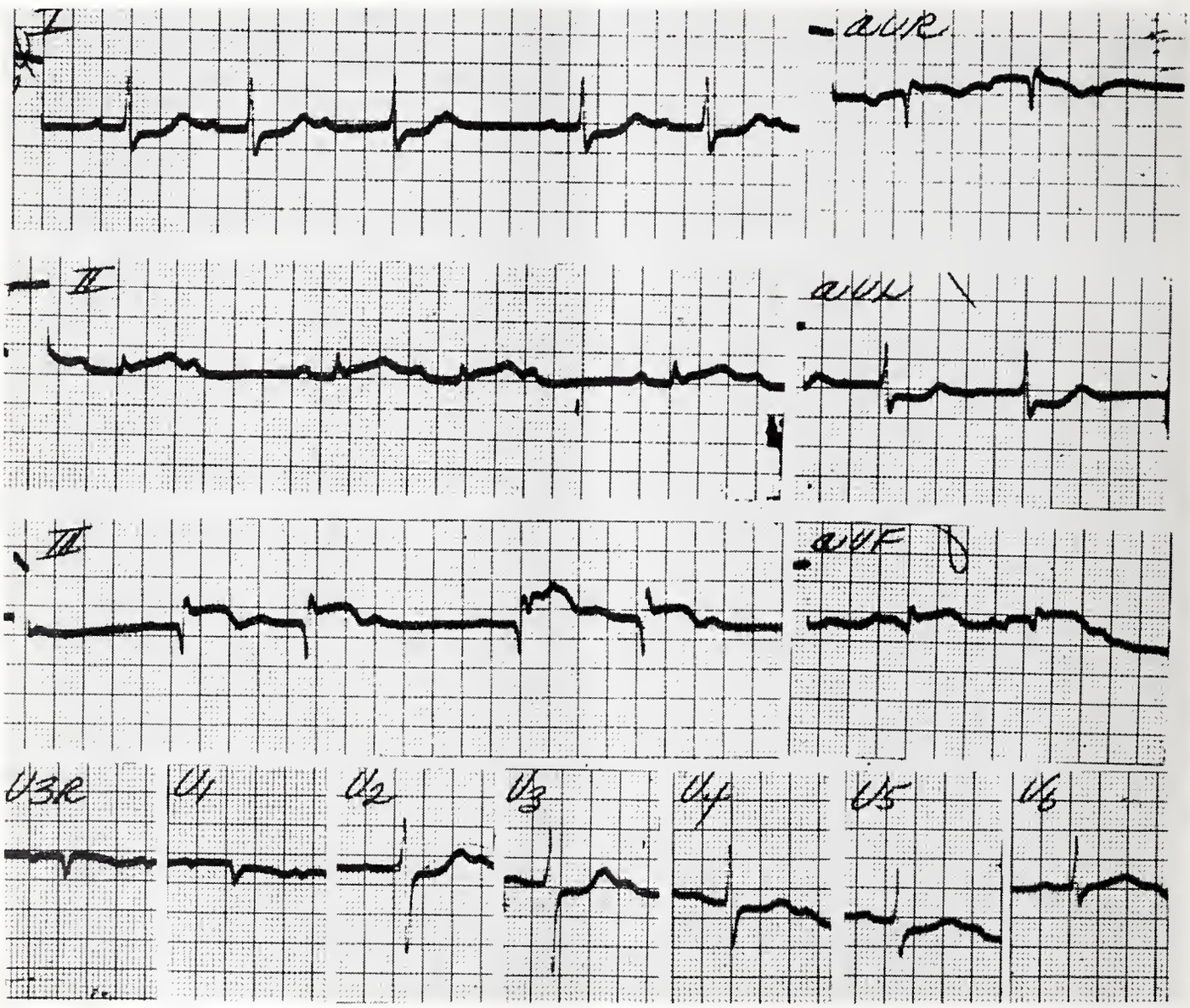
J Thorac Cardiov Surg 57:153-159 (Feb) 1969

Hemodynamic results following primary total correction of tetralogy of Fallot in a group of young children (1 to 3 years of age), studied 1½ to 7½ years postoperatively, have been compared with the results in older children. Right ventricular systolic pressure and outflow tract systolic gradient were similar to figures reported for older patients. In eight children, measurements were made of end-diastolic volume and of forward stroke volume/end-diastolic volume ratio. When compared with normals, right ventricular performance was only mildly impaired. Early correction of tetralogy of Fallot can be associated with acceptable hemodynamic results.

ELECTROCARDIOGRAM OF THE MONTH

AGE: 72 SEX: Female BUILD: Stocky BLOOD PRESSURE: 180/90
CARDIAC DIAGNOSIS: Arteriosclerotic Heart Disease.
OTHER DIAGNOSES: Diabetes, bilateral leg amputations.
MEDICATION: Not stated.
HISTORY: Recent persistent vomiting.

See Answer on page 496



The Department of Medicine, University of Arkansas Medical Center
James S. Taylor, M.D., Professor of Medicine

WHAT IS YOUR DIAGNOSIS?

Prepared by the
Department of Radiology, University of Arkansas
School of Medicine, Little Rock

See Answer on page 496

HISTORY: Newborn infant with bony deformities.

PUBLIC HEALTH AT A GLANCE

Arkansas Child Development Center

J. A. Harrel, Jr., M.D.*

The Child Development Center is located in the Clinic Annex of the new Health Department Building. It is mainly a diagnostic center for children who are suspected of being retarded, having developmental problems or having learning difficulties in school.

The staff of the center consists of the Director-Pediatrician, Dr. Harrel, two Psychologists, Mrs. Dorothy Diles and Mr. Dan Hinkle, an Educational Specialist, Mrs. Elizabeth Alstadt, and four secretaries. We have an unfilled position for a Social Worker and for a Public Health Nurse. In addition to the regular staff, consultation is received from a Pediatric Neurologist, Dr. J. H. Bornhofen, a Psychiatrist, Dr. W. O. Young, and two Pediatricians, Dr. Deane Baldwin and Dr. L. K. Austin. We have a completely equipped dental unit and a part time dentist will be employed in the near future.

A diagnostic work-up at the center consists of a complete social history, a medical history, physical and neurological examination and a psychological evaluation.

The social history records the present and past family relationships, educational background and socioeconomic level. The medical history reviews the entire pregnancy, delivery and newborn period plus developmental sequences. Past illnesses, operations and particularly visual and hearing problems are reviewed. The routine physical and urinalysis is done but the child is also tested for coordination deficits, hand, eye, foot and ear dominance and detailed neurological, x-rays and EEG's when needed.

The psychological tests commonly used are the Merrill-Palmer Scale of Mental Tests and Stanford-Binet in the younger child and the Wechsler Intelligence Scale for Children tests in the older group. Various other tests, depending on specific problem, are used.

After a child has run the gamet of examinations, the staff sits down together to share their findings and map out a course for the parents. After staffing the parents are counseled as to what program we think would most benefit the child.

If the child falls into the retarded range and is educable, we suggest a special education class in the local school. If the child falls into the trainable category, we may suggest continued home care, a day care center if available or the Arkansas Children's Colony at Conway if we feel the child would function better in an institution. If the child is in the custodial or profound range, we may still recommend home care but more likely will recommend Colony placement.

If the child has average or above average intelligence and has a learning disability, we will suggest ways for the parents to handle the child at home as the child will function better in a structure environment and will send a report to the school suggesting certain types of curriculum changes that would benefit the child. We will also consult with the family physician and suggest medication to help the child's hyperactivity, lack of concentration and distractibility. If the physician desires, we will supervise the medication regime having the child return at regular intervals for a consultation and review of problem.

If any of the children have an emotional overlay that is causing difficulties, our psychologists will schedule regular sessions with the parents and play therapy with the child.

Referrals to the Child Development Center may come from any interested person; by telephone or letter, and we will send an application to the family.

*Director, Child Development—Hearing and Speech Center, Arkansas State Department of Health, 4815 West Markham, Little Rock, Arkansas.

EDITORIAL

The American Hospital In The Midst Of Change

Alfred Kahn, Jr., M.D.

The American hospital is part of the changing American scene. With better health care the goal, the American hospital as currently employed is, so to speak, "over-used." Most hospitals in current usage were designed for the moderately ill. In other words, their purpose was to care for non-ambulatory patients, who for the most part were not critically ill. With the developing shortage of hospital personnel, it became apparent that there was a group of critically ill patients, who needed to be segregated for intensive care or the mortality rate in this group would soar; this has been done in most hospitals with a very salutory effect. The big problem is the other end of the spectrum. American hospitals were not planned for or designed for the ambulatory patients, and this group has flooded the hospitals to such an extent the seriously ill cannot be admitted without delay. It is uneconomical to have large fixed structures for the care of ambulatory patients when adequate care is available in physicians' offices. This abuse of facilities results in higher insurance premiums and public fund campaigns for more hospital beds. This abuse is the fault of the medical profession.

Another facet of the changing scene is the spectacular and successful rise of Negro personnel in the hospitals even in the deep south. Not alone is the Negro performing well in the non-professional hospital jobs, but they are performing well as nurses, technologists, and administrative workers. Competence, not color, is the basis of approval. The Negro hospital worker is well accepted in this area by his fellow workers and by the patients.

The effect of the medicare bill is to change the patterns of medical education. In the private hospital is a wealth of teaching material that used to be seen only in the "teaching hospitals" closely affiliated with a medical school. Actually, the teaching hospitals have in certain instances a relative deficiency of certain types of cases. This change in the locale of the teaching cases foreshadows some rearrangement of our medical school teaching program. Many medical schools have restricted their active teaching program to their own teaching hospital; with the dissemination of interesting cases into the "private" hospitals; there will be a need to expand the medical school program into the private hospital. The private hospitals will, so to speak, become teaching affiliates of the medical schools. This relationship has much to recommend it. In the first place, the patient in the private hospital places no budgetary drain for the medicines, beds, etc., on the medical school. Secondly, a teaching program in a private hospital invariably upgrades medical care and adds to the prestige of the institution. Thirdly, the medical student and intern get a better introduction into private practice, which is where the bulk of physicians currently go.

The expansion of the physical plant of the hospitals has been an almost geometric progression in the past twenty years. Some local institutions have jumped from 175 beds to the vicinity of 500 beds. These big hospitals are physically complex and they require various complex staffing with nurses, technologists, housekeepers, and so on. Whereas the physician was, so to speak, the king pin in hospital operation 25 or 30 years ago, the size of and the complexity of staffing problems of the new hos-

pitals has stimulated the development of a new professional group: the hospital administrator, who has to combine the traits of a business executive with a very good understanding of medical problems. The administrator requires a depth of staff like the general staff in the military; these include a head of nursing personnel, a director of non-professional personnel, a purchasing department head skilled in cost accounting for both drugs and conventional supplies as food, and not least, there has to be a director of planning who constantly works to project the heads of the hospital and the relation of the hospital and the community. All of this means that the care of the hospitalized in former years consisted of professional visits in a rather simple hotel like environment. The physician was the obvious king pin in making decisions. Contrast this with the present, in which the patient is in a very complex environment with innumerable programs being brought to bear on him including visits from the nursing staff, visits from the dietary staff, visits from a housekeeping staff, tests by the radiology staff, tests by the laboratory staff, visits by the department of inhalation therapy if required, and a host of other possibilities. The physician is now but one important link in the hospital chain.

Hospitals trained the para-medical personnel for themselves and their communities during the first half of this century; and by and large, they did an excellent job. Many young women with limited financial backgrounds received a good education inexpensively by going into nursing, radiologic technology, and laboratory technology. These programs were not university affiliated. The current personnel shortage in the para-medical fields has led to a re-examination of these important programs, and it is obvious that the hospitals cannot train enough para-medical employees to meet the needs occasioned by the expansion of patient beds. Ultimately, some educational institution will have to take over the training of para-medical personnel or at least supplement the hospitals in this training program. There are not enough nurses and technologists available to staff the institutions and the physicians' offices.

Plasma Fibrinolytic Hyperactivity in Children With Acute Post-Streptococcal Glomerulonephritis

Q. Maggiore, B. Jovanovic, and G. Baldini (Dept of Pediatrics, Univ of Pisa, Pisa, Italy)

Nephron 6:81-90 (No. 2) 1969

Serial assays of plasma fibrinolytic activity, euglobulin lysis activity, fibrinogen, and plasminogen were carried out in 13 children with acute post-streptococcal glomerulonephritis. A marked increase in plasma overall fibrinolytic activity was found in 12 patients during a relatively early stage of the disease. The fibrinolytic activity was due to an increase in level of plasma activators, shown by the elevated activity of the euglobulin fraction of the plasma. Plasma fibrinolytic hyperactivity probably relates to the removal of fibrin from the glomeruli.

Transient Visual Cortical Defects Associated With Paroxysmal Hypertension

R. S. Rosenberg, A. M. Mitchell, and H. A. Lester (Lab for Ophthalmic Research, Univ Hosp, Cleveland)

Arch Ophthal 81:325-327 (March) 1969

Two patients demonstrated transient visual cortical defects following episodes of paroxysmal hypertension. Both were quadriplegic as a result of cervical spinal cord injuries. The hypertension was a part of the autonomic hyperreflexia syndrome commonly seen in patients with traumatic spinal cord transections. The visual disturbances consisted of a partial homonymous hemianopia in the first patient, and concentric constriction of the visual fields with markedly reduced central acuity in the second. Full recovery occurred within several days in both.

MEDICINE IN THE NEWS

THE MONTH IN WASHINGTON

Washington, D. C.—The American Medical Association told Congress that the Internal Revenue Service acted arbitrarily and completely ignored the facts in imposing a tax on revenue from drug advertising in journals of tax-exempt medical associations.

Bernard D. Hirsh, AMA general counsel, testified before the House Ways and Means Committee, that the relation between the tax-exempt purposes of a medical association, national or state, and the drug advertising in its journal is self-evident.

"Drug advertising alerts and stimulates the physician's interest in new drugs as they become available, and also serves to remind him of the broad spectrum of useful time-proven drugs," Hirsh said. "Obviously physicians should not and do not rely upon drug advertisements as their principal source of information, but drug advertisements often provide an important step in the process through which physicians become educated in the therapeutic value and risks of new drugs and a wider variety of useful drugs. . . .

"No other advertising provides as much complete and objective information."

Hirsh said the IRS regulations taxing medical associations on their advertising revenues represents an attempt to change the law without congressional action. The IRS officials made a mistake, he said.

"We urge that this mistake be rectified expeditiously and in the most practical way possible," Hirsh said.

Spokesmen for numerous other tax-exempt associations joined the AMA in opposing the tax on their advertising revenues. These included the American College of Physicians, the American College of Obstetricians and Gynecologists, the American Psychiatric Association, the American Dental Association, the Boy Scouts of America, the Girls Scouts of America, the American Chemical Society, and the Society of National Association Publications.

Representatives of commercial publishing firms contended in testimony before the committee that the previous tax exemption gave the journals of the associations an unfair advantage in competition for advertising dollars. When the IRS announced the new tax regulations 15 months ago, it stated that the purpose of the regulations was not to raise federal revenue but to remove a competitive advantage of the tax-exempt associations.

In an announcement not directly connected with the House committee hearings, the IRS said it also is considering taxing the income tax-exempt associations get from rental of exhibit and display space at conventions.

* * *

A special advisory committee urged an extensive national program to combat alcoholism.

The National Advisory Committee on Alcoholism said in an interim report that attention should be given to alcoholism problems in all federally supported health and welfare programs. The committee also recommended:

Elimination by hospitals of discriminatory policies denying admission to alcoholic patients; health insurance coverage for alcoholics; increased support for research; prevention and control of alcoholism as a vital part of national highway safety programs.

The advisory committee provides advice and guidance to the Secretary of Health, Education and Welfare concerning the department's activities related to alcoholism. Robert Straus, Ph.D., professor of medical sociology at the University of Kentucky Medical School, is chairman of the committee. It was created in October, 1966. Its members represent all sections of the country and include experts from the fields of medicine, psychiatry, sociology, vocational rehabilitation, law, and public health.

"The magnitude of the problem is enormous," Dr. Straus said. "Our country has more than five million alcoholics. Their suffering alone is intolerable, but the need for increased action is

made even more imperative by the fact that affected families may include as many as 20 million Americans."

He also pointed out that alcoholism has a tremendous impact on business, causing absenteeism and loss of productivity.

* * *

The National Institute of Mental Health awarded a first-year grant of $250,000 for a major alcoholism research program at the State University of New York, Downstate Medical Center, New York, N. Y.

The five-year program will include experimental and clinical studies, training, and drug trials. In one study, 60 newly admitted patients between the ages of 25 and 55 with at least a five-year history of alcoholism will be studied to determine the effects of experimentally induced intoxication and withdrawal on the subjects' sleep patterns, behavior and biochemistry. The investigators will focus upon the mechanisms underlying the development of physical and psychological dependence.

Among the drugs to be tested are haloperidol, dexoxadrol, disulfiram (antabuse), paraldehyde and chlordiazepoxide alone and in combination with a tranquilizer and an antidepressant.

* * *

The federal government is planning to launch a five-year, nationwide program of inoculation against rubella, or German measles, as soon as a vaccine is licensed and available in sufficient quantities. It is expected a vaccine will be available by next fall.

Two drug manufacturers had announced before March 1 the development of a vaccine. Two others were developing one. Merck & Co., Rahway, N. J., was the first to announce completion of testing of such a vaccine. The Merck vaccine, which is of the HPV-77 strain, was reported 95 percent effective in vaccination of 18,000 children and adults. Merck also has been testing a one-shot vaccine against German measles, common measles and mumps.

PEPI, Inc., New York, N. Y., said that it had developed a modified live virus vaccine, also of the HPV-77 strain, for the disease and that, after being licensed, it would be marketed by Philips Roxane Laboratories and Parke, Davis & Co. PEPI said initial production would be primarily a single-dose vaccine for use in pediatric practice, but that later production would include dosage forms suitable for government-sponsored mass-vaccination programs.

The other two companies developing a rubella vaccine are Smith, Kline & French Laboratories, Philadelphia, and Eli Lilly & Co., Indianapolis. Eli Lilly has been developing a HPV-77 strain. Smith, Kline & French was working on a Cendehill strain. It had proved 95 per cent effective in inoculations of more than 25,000 persons, according to the manufacturer. Another vaccine, using a rubella strain RZ 27-3, has been developed at the University of Pennsylvania.

* * *

Rep. Ancher Nelsen (R., Minn.) has introduced legislation calling for the same federal tax treatment for professional corporations of physicians organized under state law as for business corporations.

"We are overdue in acting to guarantee this same right of organization to professional persons that we have always given other forms and types of businesses," Nelsen told the House.

He noted that the federal government's so-called Kintner regulations issued in 1960 primarily keyed taxation of professional corporations to state law.

"As a result," he said, "many states, Minnesota included, passed laws enabling incorporation under these regulations. Assuming the air was cleared, many corporations were formed. However, in 1965, the Internal Revenue Service issued new regulations reversing its position, which if upheld, make it almost impossible to create a professional corporation, regardless and in spite of state laws permitting the same.

"No business can operate without some basis of continuity of the ground rules. If any set of rules should be stable, the rules governing the basic tax classification of businesses for tax purposes should be stable and not subject to administrative whim. Businesses, almost without exception—except for the professions with which this bill deals—are now allowed to decide whether to adopt the partnership, association or corporate form under applicable state laws. There is no logical reason for denying this choice to persons who are rendering personal services in the medical or legal fields. Fairness and equity in application of the federal income tax laws demands that all businesses be treated alike in this sense.

"The only apparent reason for the 1965

amendments to the regulations was to prevent a possible reduction in federal revenues. I am certainly convinced that this is not an adequate reason for ignoring years of legal precedent and congressional intent in this field. Furthermore, the providing of health, pension and profit-sharing plans through tax incentives under the corporate structure is a worthy objective and a legitimate use of the tax laws. Indeed, I am advised that any possible total tax revenue loss will be minimal when it is realized that most profits will be ultimately taxable, even though such taxation might be immediately deferred.

"The position taken by the Internal Revenue Service in 1965 is untenable. It violates fairness, equity, reasonableness, years of legal precedent, and the intent of Congress as to the tax treatment of business organizations operating legitimately under state law. I would urge all my colleagues to support hearings and passage of this needed legislation at the earliest possible date."

* * *

Sen. Clinton Anderson (D., N. M.) introduced a bill to tie medicare medicaid payments to hospitals and nursing homes to local Blue Cross allowances. The bill complements a measure introduced by Sen. George D. Aiken (R., Vt.) earlier this year which ties physicians' charges to Blue Shield schedules. Aiken co-sponsored Anderson's bill. Co-sponsoring both bills are Sen. Mike Mansfield (D., Mont.) and Sen. Winston L. Prouty (R., Vt.). Anderson co-sponsored Aiken's bill.

Anderson also said he supports the idea of Sen. John J. Williams (R., Del.) that Congress should give medicare and medicaid programs a close look, perhaps a full-dress investigation.

THINGS TO COME

Dr. Roy Lester, who was head of the Washington office of the American Medical Association, has resigned his position and established Medical Administrative Consultants with headquarters in Ormond Beach, Florida. Dr. Lester is president. Medical Administrative Consultants will offer unbiased opinion and years of experience to medical groups and organizations on a consultant basis.

* * *

THE URINARY TRACT IN OBSTETRICS AND GYNECOLOGY

Conference Room — Mezzanine — Jeff Banks Student Union
Thursday, May 22, 1969 — 8:30 A.M. - 4:00 P.M.

Diagnostic Procedures of Value in Urinary Tract Disease; Role of Dialysis and Transplants in Treatment of Renal Failure; Urinary Tract Infection, Calculi and Pyelonephritis; Choice of Antibiotic in Urinary Tract Infection; The Kidney in Pregnancy; Urinary Stress Incontinence; C P C and Postoperative Bladder Care.

No registration fee (pay for your own lunch). Advance registration not required but desirable. Approved for AAGP credit.

* * *

CONFERENCE ON OBSTETRICAL, GYNECOLOGICAL AND NEONATAL NURSING

University of Arkansas Medical Center Auditarium
Little Rock, Arkansos
Friday, May 23, 1969 — 8:30 A.M. - 5:00 P. M.

Simplified Bladder Care; Intensive Care Nursing Principles Adaptable to a Small Hospital; Maternal and Fetal Aspects of Reproduction; The Kidney in Pregnancy; Diagnosis of Urinary Tract Disease; Nurses' Association of The American College of Obstetricians and Gynecologists; Choice of Antibiotics in Urinary Tract Infection.

Advance registration fee of $3.00. Registration fee $4.00 after May 16. $1.50 for student nurses. Lunch included in registration fee.

* * *

FIRST ANNUAL WILLIS E. BROWN MEMORIAL LECTURE

University of Arkansas Medicol Center Auditarium
Little Rack, Arkansos
Thursday, Moy 22, 1969 — 7:00 P.M. - 8:00 P.M.

Guest Speaker—William F. Mengert, M.D., Professor Emeritus, Department of Obstetrics and Gynecology, University of Illinois College of Medicine.

This lecture will be of interest to laymen as well as physicians, and Doctor Brown's family, many friends, associates and former patients are all cordially invited to attend.

OBITUARY

Dr. J. Donald Hayes, a retired Little Rock physician, died January 24, 1969. Dr. Hayes was born in Abilene, Texas, on March 3, 1906. He attended Henderson-Brown College and Little Rock College and graduated from the University of Arkansas School of Medicine in 1931. He served an internship at St. Vincent Infirmary in Little Rock. He was a member of the Arkansas Medical Society and the American Medical Association.

PERSONAL AND NEWS ITEMS

Physicians Re-elected to Academy

The following physicians have been re-elected to active membership in the American Academy of General Practice: Dr. George F. Wynne, Warren; Dr. Charles A. Archer, Jr., Conway; Dr. James D. Armstrong, Ashdown; Dr. Charles W. Kelley, Magnolia; Dr. Fred C. Inman, Jr., Carlisle. Dr. Marvin N. Kirk, Jr., Benton, has been elected to membership in the Academy.

Dr. Marvel Joins Clinic

Dr. Wiley R. Marvel recently joined the staff of the Saltzman-Guenthner Clinic in Mountain Home. He formerly practiced in Clinton, Illinois. Dr. Marvel received his Doctor of Medicine degree from the University of Tennessee School of Medicine.

Symposium Held

A surgical symposium of the Arkansas Chapter of the American College of Surgeons was held in Hot Springs in March. Dr. Marlin B. Hoge, Fort Smith, is president of the Arkansas Chapter; Dr. James H. French, Hot Springs, is secretary. Dr. Marvin Eisele of Hot Springs was in charge of the local arrangements. Physicians on the program included Dr. Joseph A. Norton, Little Rock; Dr. Jasper McPhail, Little Rock; Dr. James G. Stuckey, Jr., Little Rock, and Dr. Martin C. Hawkins, Jr., Searcy.

Physicians Participate in Workshop

Dr. Curtis Clark, Sheridan, recently attended a Workshop on Clinical Hypnosis and Psychotherapy sponsored by the American Society of Clinic Hypnosis in Memphis. One of the faculty for the Workshop was Dr. T. Duel Brown of Little Rock.

Physicians Honored

Dr. D. B. Stough, Jr., and Dr. Walter G. Klugh, Sr., both of Hot Springs, were honored on March 28th with a luncheon by the Garland County Medical Auxiliary in observance of Doctors' Day. Dr. Stough and Dr. Klugh have both been practicing medicine for 50 years. Their sons, Dr. W. G. Klugh, Jr., and Dr. Dowling B. Stough, III, attended the luncheon honoring their fathers.

Dr. Pupsta Honored

Dr. Ben Pupsta was honored by the town of Clarendon on annual Doctors' Day observed March 30th.

Physicians Are Instructors for Study Course

Dr. E. E. Clemmons was the instructor for the "Anatomy and Physiology" portion of the Sebastian County Medical Assistants Society's study course which began April 7th. Dr. Paul Rogers lectured on "Medical Ethics" as a part of the course.

Dr. Johnston Honored

Dr. O. J. T. Johnston of Batesville, who retired in January after practicing medicine for 62 years, was honored by a dinner in March given him by the Independence County Medical Society and Auxiliary. Dr. W. J. Ketz of Batesville presented Dr. Johnston with a plaque in appreciation for his many years of service.

Physicians Named as Outstanding Young Men

Dr. John W. Trieschmann of Hot Springs was one of the three individuals named as Outstanding Young Men of Arkansas by Arkansas Jaycees. Another member of the Medical Society, Dr. Frederick Fraunfelder of Little Rock was one of the ten finalists.

Article Written About Dr. Fairley

A very complimentary article was written in the OSECOLA TIMES about Dr. Eldon Fairley. The article stated how much Dr. Fairley had contributed to the community. The Junior Auxiliary recently nominated him as a candidate for the "Man of the Year" because of his services not only in the medical profession but also in the religious, political and civic affairs of Osceola and the surrounding area.

Dr. Whittaker Becomes Full Time Director

Dr. L. A. Whittaker began serving as full time director of Public Health Service in Sebastian County on March 17th. For the past two and one-half years he had served as part-time director.

Physicians Are Guest Speakers

Dr. Harry Hayes, Jr., and Dr. James Stuckey, both of Little Rock, were guest speakers at the 12th annual meeting of the Southeastern Society of Plastic and Reconstructive Surgeons held in Hot Springs in March.

Dr. Rainwater Delivers 3,000th Baby

Dr. W. S. Rainwater delivered the 3,000th baby at Union Memorial Hospital at El Dorado in March.

Dr. Simmons Conducts Program

Dr. M. D. Simmons of Bryant helped conduct a Five-Day Plan to "kick the habit" for smokers. The physician-clergy plan consists of evening group therapy sessions and a daily personal control program.

Dr. Lazenby Given Award

Dr. Wayne Lazenby of Dumas recently received the annual citizenship award made by the Dumas Lions Club. He received an engraved plaque as the Man of the Year.

Dr. Norton Selected to Inspect Naval Facilities

Dr. Joseph A. Norton of Little Rock was one of 15 men invited by the Secretary of the Navy to be the guest of the Commander of the Pacific Fleet and to inspect Naval facilities in the South Pacific April 15th through April 26th.

Dr. Owens Honored

Dr. G. B. Owens of Morrilton was honored by the St. Anthony's Hospital Auxiliary on Doctor Appreciation Day held at the hospital.

Dr. Baltz Recognized

Dr. M. A. Baltz of Pocahontas was recently presented an award by the Selective Service System by order of the President of the United States. The award was in recognition of his service as an uncompensated member of the Selective Service System.

Dr. Holt Conducts Discussion

Dr. Forney Holt of Hope recently discussed allergies, symptoms, and importance of treatment with the Extension Homemaker Health Leaders.

Dr. Lilly Represents Speakers Bureau

Dr. Kenneth E. Lilly of Fort Smith spoke to the Northside High School Paramedical Club on April 10. The subject of his talk was "Drugs."

PROCEEDINGS OF SOCIETIES

The Lawrence County Medical Society cooperated with the County Development Council in a county-wide diabetes detection drive in April, according to Dr. Joe Hughes, president.

NEW MEMBERS

DR. THEODORE KERMIT TUCKER has been accepted for membership in the Washington County Medical Society.

Dr. Tucker is a native of Benton, Arkansas. From 1941 to 1946, Dr. Tucker served with the United States Army. He attended the University of Arkansas for his pre-medical education, receiving a B.S. degree in 1947. Dr. Tucker was graduated from the University of Arkansas School of Medicine in 1951 and completed his internship at Aultman Hospital, Canton, Ohio.

He has practiced in Magnolia, Ohio, and in Fayetteville.

Dr. Tucker is associated with the Mock Clinic in Prairie Grove in the practice of General Medicine and Surgery.

Washington County has another new member, DR. CARL M. KENDRICK. Dr. Kendrick was born in Lowell, Arkansas. He was in the Navy from September, 1953, to November, 1956. Dr. Kendrick attended the University of Arkansas and graduated from the University of Arkansas School of Medicine in 1963. He interned at St. Francis Hospital, Wichita, Kansas, and received his residency training in Orthopaedic Surgery and General Surgery (Neurosurgery) at the same institution. Dr. Kendrick has been associated with the Orthopaedic Clinic in Fayetteville since June, 1968.

* * *

DR. ROBERT LAWRENCE CASEBEER is a new member of Benton County Medical Society. Dr. Casebeer was born in Lewistown, Montana. He received his pre-medical education at York College, York, Nebraska. He was graduated from the University of Nebraska School of Medicine in 1940, and interned at Sacred Heart Hospital, Spokane, Washington. Dr. Casebeer's residency work was at the University of Minnesota Medical School, University of Oregon Medical School, and Tulane University School of Medicine.

Since 1968, Dr. Casebeer has been in the practice of Ophthalmology at Pickens Clinic, Rogers.

Dr. Casebeer practiced in Oklahoma prior to

ANSWER—Electrocardiogram of the Month

INTERPRETATION

RATE: Approximately 60

RHYTHM: Sinus with variable A-V block

P-R: Variable QRS: .10 Q-T: .46

SIGNIFICANT ABNORMALITIES:

Increasing P-R intervals followed by dropped beats. Significant Q in aVF with ST elevation aVF, III, II and reciprocal depression.

INTERPRETATION: Abnormal

Acute inferior myocardial infarction with variable incomplete A-V block with dropped beats (Wenckebach).

COMMENT:

Patient expired.

ANSWER—What's Your Diagnosis?

Osteogenesis imperfecta.

X-RAY FINDINGS:

Multiple fractures with bowing of the long bones. The bony cortices are thin and the bony structures are radiolucent.

coming to Arkansas.

He was President of the Oklahoma State Society of Ophthalmology in 1966, and is a Professor of Ophthalmology at the University of Oklahoma School of Medicine. He is a member of the Pan American Society of Ophthalmology.

* * *

A new member of the Baxter County Medical Society is DR. WILEY R. MARVEL. Dr. Marvel is a native of Chicago. He attended Westminster College, Fulton, Missouri, receiving his A.B. degree in 1931. Dr. Marvel was graduated from the University of Tennessee College of Medicine in 1934. His internship was served at Evangelical Hospital, Chicago, Illinois. He was a flight surgeon in the Air Force for three and one-half years, and was railroad surgeon for the Illinois Central Railroad. He has practiced in Weldon and Clinton, Illinois.

Dr. Marvel is now associated with the Saltzman-Guenthner Clinic, Mountain Home, in the general practice of medicine.

* * *

The Clark County Medical Society has announced that DR. JAMES T. BLACKMON has been accepted for membership in that society.

Dr. Blackmon was born in Fort Worth, Texas. He attended Ouachita Baptist College, receiving a B.A. degree in 1953, and a B.S. degree in 1960. Dr. Blackmon was in the United States Army Infantry from 1953 to 1958. In 1964, he was graduated from the University of Arkansas School of Medicine. He interned at Grady Memorial Hospital, Emory Hospital School of Medicine, Atlanta, Georgia. His residency training was at Crawford W. Long Hospital, Emory University School of Medicine. He is a surgeon.

Dr. Blackmon is associated with Dr. Jack Kennedy at 1008 Pine Street, Arkadelphia.

* * *

DR. JAMES C. CALLAWAY is a new member of the Union County Medical Society. He is a native of Tyler, Texas. Having graduated from the University of Texas in 1956, and receiving his B.A. degree, he entered the University of Texas Medical Branch, and was graduated in 1958. Dr. Callaway interned at the United States Public Health Service Hospital, Staten Island, New York. His residency training was at Tulane Medical Center and the Veterans Administration Hospital in New Orleans.

Dr. Callaway has been practicing Orthopaedic Surgery at 2400 Calion Road, El Dorado, since December, 1967.

* * *

Another new member of the Union County Medical Society is DR. CHARLES W. TURNER. Dr. Turner was born in Harlingen, Texas. He attended Arkansas A. & M., the University of Arkansas, Fayetteville, and then entered the University of Arkansas School of Medicine, from which he was graduated in 1950. Dr. Turner interned at St. Mary's Hospital, Minneapolis. He had six months in an Obstetrics-Gynecology residency in 1951 at the United States Navy Hospital.

Dr. Turner was in the military service from 1942 to 1946, and then again in 1950 to 1953.

Before coming to Arkansas, Dr. Turner practiced fifteen years in California.

Dr. Turner is now at Harper Clinic, El Dorado, in the General Practice of Medicine.

* * *

The Pope-Yell County Medical Society has announced that DR. JOSEPH GARDNER is a new member of that society.

Dr. Gardner is a native of Kansas City, Missouri. He received his A.B. degree in 1960 from Central Methodist College, Fayette, Missouri. In 1964, he was graduated from the University of Missouri School of Medicine. Dr. Gardner interned at Hillcrest Medical Center, Tulsa, Oklahoma. He completed three years of residency work in Obstetrics and Gynecology at Hillcrest Medical Center.

Dr. Gardner is a captain in the Army Reserve at Little Rock.

Dr. Gardner is located at the Millard-Henry Clinic, Russellville, and specializes in Obstetrics and Gynecology.

* * *

DR. JOHN PELHAM BURGE has recently been accepted for membership in the Chicot County Medical Society. Dr. Burge was born in Lake Village. He received his pre-medical education at Southwestern at Memphis and was graduated from the University of Arkansas School of Medicine in 1961. Dr. Burge interned at Parkland Memorial Hospital, Dallas, Texas. He served a residency in General Surgery at Alton Ochsner Medical Foundation, New Orleans, Louisiana.

Dr. Burge was in the Air Force from 1966 to 1968. While in the Air Force, he was chief of surgery at Thule and Mather Air Force Base

Hospitals.

He is certified by the American Board of Surgery, and is in the Candidate Group of American College of Surgeons.

Dr. Burge is now practicing General Surgery at the Lake Village Clinic, Lake Village, Arkansas. He is on the staff of Dumas, McGehee, and Dermott Hospitals.

* * *

Crittenden County Medical Society has added the name of DR. WILLIAM B. HODGES to its membership roll. Dr. Hodges was born in Memphis, Tennessee. He attended Arkansas State College, and was graduated from the University of Tennessee College of Medicine in 1965. Dr. Hodges interned at John Gaston Hospital.

Dr. Hodges served in the United States Air Force.

He is now in the General Practice of Medicine at Hamilton Clinic, West Memphis, Arkansas.

* * *

DR. RODGER PATRICK LEWIS is a new member of the Howard-Pike County Medical Society.

Dr. Lewis was born in Little Rock. He attended Hendrix College, Vanderbilt University, and Harvard University. In 1962, he was graduated from the University of Arkansas School of Medicine. Dr. Lewis interned at the University of North Carolina Memorial Hospital. He served with the United States Navy from 1963-66, and with the United States Public Health Service in 1967. Dr. Lewis is presently doing his residency work in Pathology at the University of Alabama.

Dr. Lewis is a member of the American Society of Clinical Pathologists.

* * *

Greene-Clay County Medical Society has recently announced that DR. JACK GILBERT RICHMOND has been accepted for membership.

Dr. Richmond is a native of Wichita, Kansas. He received his B.S. degree in 1957 from the Louisiana State University School of Medicine. He was graduated from the University of Tennessee College of Medicine in 1961. Dr. Richmond interned at Baptist Memorial Hospital, Memphis, Tennessee. His residency work was completed at Veterans Administration Hospital, Memphis, and the University of Tennessee College of Medicine.

Dr. Richmond was discharged from the United States Air Force in 1964. He practiced six months in Mississippi and one year in Memphis.

Dr. Richmond is an Assistant Professor of Pathology, University of Tennessee and John Gaston Hospitals. He is a member of the American Society of Clinical Pathologists and was certified by the College of American Pathologists in 1968.

Dr. Richmond is located at Community Hospital, where he specializies in Pathology.

* * *

DR. C. ALLEN McKNIGHT is a new member of the Pulaski County Medical Society. He was born in Brinkley, Arkansas. Dr. McKnight attended the University of Arkansas, Fayetteville, receiving a B.A. and a B.S. degree. In 1963, he was graduated from the University of Arkansas School of Medicine. He interned at Barnes Hospital, St. Louis, Missouri. His residency work in Obstetrics and Gynecology from 1964-68, was at the same institution.

Dr. McKnight is a Junior Fellow of the American College of Obstetrics and Gynecology and is a candidate of the American College of Surgeons.

Dr. McKnight has an office in the Baptist Medical Arts Building in Little Rock, where he specializes in Obstetrics and Gynecology.

* * *

Another new member of the Pulaski County Medical Society is DR. PAUL JAMES CORNELL. Dr. Cornell is a native of New Orleans, Louisiana. He attended Tulane University School of Medicine from 1953 to 1957, receiving a B.S. degree in Chemistry. After graduating from the Louisiana State University School of Medicine in 1961, he interned at Martin Army Hospital, Fort Benning, Georgia.

Dr. Cornell was a Major in the Army Medical Corps from July, 1961, to October, 1968. His residency training was at William Beaumont General Hospital, El Paso, Texas, in Obstetrics and Gynecology from 1962 to 1965.

He is certified by the American Board of Obstetricians and Gynecologists.

Dr. Cornell specializes in Obstetrics and Gynecology at 432 Donaghey Building, Little Rock.

* * *

DR. CHARLES WILLIS QUIMBY is also a new member of the Pulaski County Medical Society.

Dr. Quimby was born in Bristol, Pennsylvania. He received a B.A. degree from the University of Pennsylvania and was graduated from the

University of Pennsylvania School of Medicine in 1954. Dr. Quimby interned at Henry Ford Hospital, Detroit, Michigan. He was in Internal Medicine residency training at Henry Ford Hospital for one year and then completed two years in Anesthesia at the University of Minnesota Hospital.

Dr. Quimby is certified by the American Board of Anesthesiologists and is a member of the American Society of Anesthesiologists.

From July, 1966, to September, 1968, Dr. Quimby was Assistant Professor, Department of Anesthesiology, at Northwestern University Medical School. He is currently Assistant Professor at the University of Arkansas School of Medicine.

Dr. Quimby also holds an LL.B. degree from the University of Pennsylvania Law School and is a member of Bar Associations in Pennsylvania and Illinois.

Dr. Quimby's address is 4301 West Markham, Little Rock, where he specializes in Anesthesiology.

BOOK REVIEWS

COLLATERAL CIRCULATION IN CLINICAL SURGERY, Various Authors, Edited by D. E. Strandness, Jr., M.D., illustrated, pp. 633, published by W. B. Saunders Company, Philadelphia, London, Toronto, 1969.

This is an interesting book, principally of interest to surgeons. However, there is a section on the thoracic aorta which will be of considerable interest to the internist and pediatricians. Furthermore, there is a very good discussion on collateral circulation of the heart. This will be of extreme interest to internist and cardiologist. There is a very nice discussion in Section 2 on arterio-venous fistulas. Of particular interest to this reviewer was the section on the evaluation and treatment of strokes.

This is a very worthwhile book and it would be better being named Collateral Circulation than Collateral Circulation in Clinical Surgery. The title tends to indicate that it might not be of interest to other specialties, which is not the case.

* * *

1969 CURRENT THERAPY, Various Authors, Edited by Howard F. Conn, M.D., pp. 945, published by W. B. Saunders Company, Philadelphia, London and Toronto.

This textbook is a splendid compendium of currently good practice as seen through the eyes of an outstanding group of authors. This volume is not intended to be a complete summary of everything that applies to any given disorder, but it does give a comprehensive insight into an approved method of treatment(s). This is the type of book that most physicians and surgeons would like to have near their desks for handy references. The book is greatly growing in size. For example, it now consists of 945 pages whereas in 1966 it was something over 800.

One of the manifestations of how up-to-date this book is, is that there is even a section on the treatment of tear gas. This text is highly recommended to the medical profession.

Role of Insulin in Hepatic Handling of Glucose

L. L. Madison (Dept of Internal Medicine, Univ of Texas Southwestern Medical School, Dallas)
Arch Intern Med 123:284-292 (March) 1969

The effects of insulin on hepatic glucose tolerance, including data on hepatic glucose output, production (glycogenolysis and gluconeogenesis) and uptake in normal and diabetic animals are reviewed. Data from in vivo studies indicate that these changes in hepatic handling of glucose following insulin administration are direct effect of insulin on the liver rather than effects secondary to insulin's action on muscle and adipose tissue. The hepatic action of insulin seems to be vital, both during feasting and fasting.

Plasma Renin Activity in Acute Renal Insufficiency

F. Kokot and J. Kuska (Silesian School of Medicine, Katowice, Poland)
Nephron 6:115-127 (No. 2) 1969

Plasma renin activity (PRA) was studied in 37 patients with acute renal insufficiency and in 20 healthy subjects. Significant increase of PRA in the oliguric phase of acute renal failure could be established. PRA decreased in the diuretic phase of this syndrome. No straight correlation between elevated PRA and the degree of hypertension, plasma sodium, and potassium could be found.

TUBERCULOSIS ABSTRACTS

Sponsored by Arkansas Tuberculosis and Respiratory Disease Association

CHILDHOOD SARCOIDOSIS

In a series of eighteen cases of sarcoidosis in children, outcome of the disease was more favorable in those who were asymptomatic at the time of diagnosis than in those who had symptoms. Sarcoidosis may be more prevalent in children than has been estimated.

Sarcoidosis is rarely diagnosed in children in an early stage. One reason is that children are not usually included in chest X-ray surveys which may lead to the discovery in adults of the clinically silent, early intrathoracic sarcoidosis. By the time sarcoidosis is recognized in children it may be advanced, with one or more extrathoracic components.

In a study of 18 cases of proved sarcoidosis in children, the outcome of the disease was found to correlate largely with the presence or absence of symptoms at diagnosis.

In age the children ranged from 9 to 15 years. Eleven were boys, seven were girls. The disease was symptomatic at the time of diagnosis in 11; asymptomatic in seven. All children 12 years of age and under, but only six of those 13 to 15 years of age, had symptoms at the time of diagnosis.

Seven of 11 children with symptoms already had chronic disease, and the disease in five of the seven asymptomatic children was in the subacute stage. Extrathoracic involvement had occurred in all the children with disease in the chronic stage, but only three of the asymptomatic children had such involvement.

Two of the children had normal X-ray films initially; the others had hilar adenopathy either alone (3) or with pulmonary mottling or mottling alone (13). Five of the children with hilar adenopathy and pulmonary mottling showed flocculent infiltrations; five had miliary nodules, and three had focal streaking. In one child who had parenchymal densities without hilar adenopathy, the lung pattern was diffusely reticular.

Eight of the *symptomatic* children had hilar adenopathy with pulmonary mottling. Two children with extrapulmonary sarcoidosis had a normal chest film. Three children with no symptoms at onset showed hilar adenopathy alone, and four others showed hilar adenopathy and pulmonary mottling.

PRESENTING SIGNS

Enlargement of the peripheral lymph nodes was the presenting sign in four of the 11 children with symptomatic onset. In three others, dimness of vision in one eye was the first sign. Signs in the other children were respiratory symptoms, weight loss, erythema nodosum, and parotid enlargement.

The Kveim test was positive in 16 of the 18 children. Both children in whom it was negative had had sarcoidosis for more than three years when the Kveim test was applied. Diagnosis was confirmed by biopsy. Eleven children in all had organ biopsies.

All but two children had negative tuberculin tests, which is common in sarcoidosis. The two positive reactors responded only to second-strength PPD.

Ten children received drug therapy consisting of daily doses of either prednisone (or an equivalent hormone) or chloroquine; two of the 10 received both drugs at different times.

OBSERVATION PERIOD

Seventeen of the children were observed for periods ranging from one to nine years (a mean of three and one-tenth years). At the end of the observation period, activity had subsided and all lesions had cleared in five, four of whom had been asymptomatic at onset. Ten other children improved, but clearing was not complete. Only two children, both symptomatic onset, became worse.

Improvement, but not clearing of lesions, was observed in 14 of the 17 children during the *first* year, and was maintained in all but one of these. The remaining patient in this group developed bilateral nerve deafness in the second year. One

Louis E. Siltzbach, M.D., and Gerald M. Greenberg, M.D. *The New England Journal of Medicine*, December 5, 1968.

child who became worse in the first year later lost the sight of one eye.

The course and outcome were distinctly less favorable for children with symptomatic onset than for those who were asymptomatic and whose disease was detected by mass surveys or routine roentgenography. Six of seven asymptomatic children, all 13 years or older at the time of diagnosis, were clinically well when last observed.

However, of the 11 symptomatic children, only two were entirely well, and nine had varying grades of disease activity. Temporary improvement did occur spontaneously or with therapy in all the 11 children. Corticosteroid therapy helped control recent lesions. Chloroquine was of particular value in treating cutaneous sarcoidosis. Respiratory failure has not as yet been observed in any of the children.

The discovery that asymptomatic sarcoidosis was relatively common among young adults dates back to the mass X-ray surveys of Armed Forces recruits in World War II. There has since been growing recognition that a presymptomatic stage, marked only by silent, bilateral hilar adenopathy and frequently associated with a negative tuberculin test, is more common in the general population than had been recognized. Since children have not been included in mass radiographic surveys, the prevalence of childhood and adolescent sarcoidosis has not until recently been estimated in any country. In Japan and Hungary, children are being included in such surveys and asymptomatic cases are being uncovered at a prevalence rate approaching that of adults in those two countries.

PREDICTING PROGNOSIS

In the series reported, the children with symptomatic onset were younger and had more extensive disease than those whose illness was detected in the asymptomatic stage. Because of the delayed detection of sarcoidosis in children whose symptoms were already present, corticosteroid therapy was required more frequently and for a longer time than it was for the asymptomatic group. The prognosis was also less favorable for the symptomatic child. Prognosis could be predicted with a fair degree of accuracy by the end of the first year of observation.

Thus, it appears that sarcoidosis may come and go unrecognized in children, especially in those approaching adolescence, and that the disease is more frequent in children than had been estimated.

A possible diagnosis of sarcoidosis should be considered in children with unexplained mediastinal or superficial lymphadenopathy, hepatosplenomegaly, uveitis, enlargement of the salivary or lacrimal glands, cystic bone lesions of the hands or feet, lung infiltrations or granulomatous skin lesions. Organ biopsy, Kveim test and appropriate radiography can lead to early diagnosis, after which proper therapy can be instituted, with the prevention of some of the irreversible organ damage.

Myocardial Infarction: Orthostatic Tolerance After Bed Rest

K. Fareeduddin and W. H. Abelman (Thorndike Memorial Lab, Boston City Hosp, Boston)

New Eng J Med 280:345-350 (Feb 13) 1969

In the presence of coronary atherosclerosis, systemic hypotension may result in acute ischemic damage to the myocardium. In 22 patients convalescing from acute myocardial infarction, orthostatic tolerance was studied by means of measurements of heart rate and blood pressure after bed rest. Tests were repeated after full mobilization in 16 patients. In five of ten patients treated with strict bed rest for nine to 24 days, systemic blood pressure transiently fell by more than 38 mm Hg during 15 minutes of passive upright tilt to 70°, a response abolished after full ambulation. This response was also seen in three of eight patients assuming a passive, sitting posture after strict bed rest. It was usually asymptomatic. The response was not observed in eight patients treated with modified bed rest.

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(O) Original Articles; (SP) Special Articles; (BR) Book Review; (E) Editorial; (OB) Obituary; (R) Resolution

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